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ABSTRACT

This publication provides a comprehensive overview of work done across all parts of the National Center for Education Statistics (NCES). Each issue contains short publications, summaries, and descriptions that cover all NCES publications and data products released in a 3-month period. Each issue also contains a message from the NCES on a timely subject and a featured topic with invited commentary. The articles in the first section, Featured Topic: National Household Education Surveys Program, are: (1) "Efforts by Public K-8 Schools To Involve Parents in Children's Education: Do School and Parent Reports Agree?" (Xianglei Chen); (2) "Participation Trends and Patterns in Adult Education: 1991 to 1999" (Sean Creighton and Lisa Hudson); (3) "Household Data in the Federal Statistical System: The Role of the National Household Education Surveys Program" (Susan Schechter); and (4) "When School Surveys Just Aren't Enough: Uses of the National Household Education Surveys Program" (David B. Bills). The second section, Elementary and Secondary Education, contains: (5) "The Nations Report Card: Science Highlights 2000" (National Center for Education Statistics); (6) "Assessing the Best: NAEP's 1996 Assessment of Twelfth-Graders Taking Advanced Science Courses" (Christine Y. O'Sullivan and Wendy S. Grigg); (7) "Dropout Rates in the United States: 2000" (Phillip Kaufman, Martha Naomi Alt, and Christopher D. Chapman); (8) "Indicators of School Crime and Safety: 2001" (Phillip Kaufman, Xianglei Chen, Susan P. Choy, Katharin Peter, Sally A. Ruddy, Amanda K. Miller, Jill K. Fleury, Kathryn A. Chandler, Michael G. Planty, and Michael R. Rand); and (9) "Characteristics of the 100 Largest Public Elementary and Secondary School Districts in the United States: 1999-2000" (Beth Aronstamm Young). Postsecondary Education, the third section, contains: (10) "Institutional Policies and Practices: Results from the 1999 National Study of Postsecondary Faculty, Institution Survey" (Andrea Berger, Rita Kirshstein, and Elizabeth Rowe). The next section, Lifelong Learning, contains: (11) "Adult Literacy and Education in America" (Carl F. Kaestle,

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Anne Campbell, Jeremy D. Finn, Sylvia T. Johnson, and Larry Mikulecky); (12) "English Literacy and Language Minorities in the United States" (Elizabeth Greenberg, Reynaldo F. Macias, David Rhodes, and Tsze Chan). The section on Libraries contains: (13) "State Library Agencies: Fiscal Year 2000" (P. Elaine Kroe, Patricia Garner, and Cindy Sheckells); and (14) "Public Library Trends Analysis: Fiscal Years 1992-1996" (Denise Glover). Crosscutting Statistics contains: (15) "Projections of Education Statistics to 2011" (Debra E. Gerald and William J. Hussar). The final section, Methodology, contains "The NAEP 1998 Technical Report" (Nancy L. Allen, John R. Donoghue, and Terry L. Schoeps). (Contains 31 figures and 23 tables.) (SLD)

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Volume 3 · Issue 4 · Winter 2001

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Editorial Note

National Center for Education Statistics

The National Center for Education Statistics (NCES) fulfills a congressional mandate to collect and report "statistics and information showing the condition and progress of education in the United States and other nations in order to promote and accelerate the improvement of American education."

Education Statistics Quarterly

Purpose and goals

At NCES, we are convinced that good data lead to good decisions about education. The *Education Statistics Quarterly* is part of an overall effort to make reliable data more accessible. Goals include providing a quick way to

- identify information of interest;
- review key facts, figures, and summary information; and
- obtain references to detailed data and analyses.

Content

The *Quarterly* gives a comprehensive overview of work done across all parts of NCES. Each issue includes short publications, summaries, and descriptions that cover all NCES publications and data products released during a 3-month period. To further stimulate ideas and discussion, each issue also incorporates

- a message from NCES on an important and timely subject in education statistics; and
- a featured topic of enduring importance with invited commentary.

All NCES publications appearing in volume 3 (issues 1 through 4) of the *Quarterly* are indexed at the end of this issue. Publications in the *Quarterly* have been technically reviewed for content and statistical accuracy.

General note about the data and interpretations

Many NCES publications present data that are based on representative samples and thus are subject to sampling variability. In these cases, tests for statistical significance take both the study design and the number of comparisons into account. NCES publications only discuss differences that are significant at the 95 percent confidence level or higher. Because of variations in study design, differences of roughly the same magnitude can be statistically significant in some cases but not in others. In addition, results from surveys are subject to nonsampling errors. In the design, conduct, and data processing of NCES surveys, efforts are made to minimize the effects of nonsampling errors, such as item nonresponse, measurement error, data processing error, and other systematic error.

For complete technical details about data and methodology, including sample sizes, response rates, and other indicators of survey quality, we encourage readers to examine the detailed reports referenced in each article.

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Val Plisko, Associate Commissioner
Early Childhood, International, and Crosscutting Studies Division

Surveying Households About Education Issues

Historically, the National Center for Education Statistics (NCES) has collected data from teachers, students, and schools through school-based surveys and from administrative records through surveys of school districts and state education agencies. In 1991, with the initiation of the National Household Education Surveys Program (NHES), NCES broadened its approach to include the collection of education data from households.

NHES defies neat pigeonholing, as it is not limited by institutional reporting and can span a number of topical issues and populations. Using household-based surveys, NHES has the potential to address many issues in education that were not addressed by earlier NCES data collection activities. These issues range from the education and care of young children to the learning experiences of adults throughout their lives. Over the past decade, NHES has surveyed household members about several education-related topics, including parents' involvement in their children's education, before- and after-school arrangements, home-schooling, and the civic engagement of young people and adults. By definition, many of these topics are outside the scope of institution-based data collections.

Each cycle of NHES typically includes two to three substantive surveys on education-related topics. The most recent data collection, NHES:2001, included the Adult Education and Lifelong Learning Survey (AELL), the Early Childhood Program Participation Survey (ECPP), and the Before- and After-School Programs and Activities Survey (ASPA). The next collection, NHES:2003, is expected to include the Parent and Family Involvement in Education Survey (PFI) and the Adult Education for Work-Related Reasons Survey (AEWR).

To provide comparative data across survey years, NHES repeats topical surveys on a rotating basis. New topics can be added to the NHES system as particular issues gain importance. In addition, one-time surveys on topics of interest to the Department of Education have occasionally been fielded. Thus, while NHES affords the opportunity for tracking phenomena over time, it is also dynamic in addressing new issues. As new NHES cycles are planned, conceptual and methodological refinements are also incorporated.

Spotlight on NHES Reports

This issue of the *Education Statistics Quarterly* highlights findings from two recent reports that draw on NHES data: *Efforts by Public K–8 Schools to Involve Parents in Children's Education: Do School and Parent Reports Agree?* and *Participation Trends and Patterns in*

Adult Education: 1991 to 1999. These two reports—together with *Homeschooling in the United States: 1999*, a recent report that appeared in the previous issue of the *Quarterly*—demonstrate the usefulness and the impressive range of NHES data. NHES can be used to shed light on the differences between parents' perceptions and school officials' perceptions of the extent to which parent involvement is encouraged and engaged in. It can also fill a data gap with reliable statistics on the extent to which parents opt to homeschool their children and their motivations for this choice. Turning to adult education, it can document developments over time in the extent to which adults participate in both formal and informal learning experiences and their reasons for doing so. Not only does NHES provide the numbers of people participating in various forms of education, but it can also provide some indication as to why people make certain choices.

Use of Telephone Interviews

The NHES design lends itself to collecting detailed information on education issues from a relatively large and targeted sample of households in a timely fashion. Households are selected using random-digit-dialing (RDD) methods, and data are collected using computer-assisted telephone interviewing (CATI). The NHES sample is drawn from the civilian population in households having a telephone in the 50 states and the District of Columbia. In each NHES survey year, between 45,000 and 64,000 households are screened, and individuals within each household who meet predetermined criteria are sampled for more detailed or extended interviews on one or more of that year's topics.

Use of telephone-based interviewing provides NHES with quick access to respondents. The turnaround for NHES data collection and reporting is estimated to be less than a year. Yet telephone interviewing is not without problems. The largest component of potential coverage bias in telephone surveys is probably due to nontelephone households (approximately 6 percent of households do not have a telephone). The NHES design does, however, incorporate steps to minimize such potential biases and to limit their possible effect on survey estimates. In future data collections, NHES will need to address innovatively the growing ubiquity of cell phones, as well as solve current problems with respondent burnout caused by commercial solicitations over the telephone. The flexibility and usefulness of the NHES design should enable it to continue to meet such challenges.

Featured Topic: National Household Education Surveys Program

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Efforts by Public K–8 Schools to Involve Parents in Children's Education: Do School and Parent Reports Agree?

Xianglei Chen

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the "Survey on Family and School Partnerships in Public Schools, K–8," conducted through the NCES Fast Response Survey System (FRSS), and from the NCES National Household Education Surveys Program (NHES).

The importance of parent involvement in children's education has long been established. Research over the last 2 decades has demonstrated that children whose parents are involved are more likely than others to have positive educational outcomes such as improved academic performance, better school attendance, higher aspirations, reduced dropout rates, and increased graduation rates (Catsambis 1998; Desimone 1999; Keith et al. 1986; Ma 1999; McNeal 1999; Miedel and Reynolds 1999; Nord and West 2001; Trusty 1999). Given the clear evidence of positive returns to parent involvement, schools nationwide are being called upon to develop policies and practices that encourage parents to become more involved in their children's education both in school and at home (Partnership for Family Involvement in Education 2000; U.S. Department of Education 1994).

What practices do schools adopt to promote parent involvement? What programs do schools offer parents to encourage them to participate? To what extent do parents attend school-sponsored activities designed to increase their involvement? In 1996, the National Center for Education Statistics (NCES) conducted two surveys to investigate these issues from two different perspectives.

The first survey, the "Survey on Family and School Partnerships in Public Schools, K–8," gathered data from public K–8 schools on their efforts to involve parents in their children's schooling.[1] Conducted as part of the Fast Response Survey System (FRSS), this survey was designed to

[1]This survey targeted public schools that offered no grade higher than 8. These schools are referred to as "public K–8 schools" in this report.

provide information on the ways that schools engage parents in their children's education and the extent to which parents respond to the opportunities for involvement that schools provide (Carey et al. 1998). Specific questions included the frequency with which schools communicated with parents about various matters relating to the processes and progress of their children's learning and development, the resources that schools provided to parents to assist them in parenting and participating in their children's schooling, volunteering opportunities available to parents, and parents' involvement in school governance.

The second survey, the Parent and Family Involvement in Education/Civic Involvement Survey of the National Household Education Surveys Program, 1996 (PFI/CI-NHES:1996), collected data from parents on several topics similar to those schools were asked about in the FRSS survey: the activities or events involving parents held by their children's schools, schools' efforts to recruit parents as volunteers in schools, school-initiated communication with parents and dissemination of information to parents, and schools' policies or organizations that involve parents in school decisionmaking.[2]

Using these two data sets, the purpose of this report is to study the level of agreement between parents' and schools' views of how schools involve parents in their children's education and how parents respond to the opportunities for involvement that schools provide. Specifically, this report addresses two major questions: Do children's parents acknowledge the efforts that schools reportedly are making? and Do schools report the same level of parent participation in school programs as parents do? The findings of this report can assist policymakers, educators, researchers, and school staff in their future efforts to evaluate parents' involvement in their children's education and further encourage it. For example, discrepancies between the reports of schools and parents may indicate that despite schools' efforts, many parents are unaware of what schools do to encourage their involvement. Schools may then use this information to develop better ways to reach parents who may be unaware of school-provided opportunities.

Schools' and Parents' Reports on School Practices to Involve Parents

Discrepancies were apparent between schools' and parents' reports on whether schools used various practices to involve parents in their children's education. For each school practice examined in this study, public K–8 schools were more likely than parents of children in such schools to indicate that schools used that practice to involve parents (figure A).

The investigation into how schools' and parents' responses varied by school characteristics further revealed that the discrepancies between the two reports were not consistent across school characteristics. For some practices, the discrepancies were found in some types of schools, but not in others. For example, 81 percent of large schools and 85 percent of schools in cities/urban fringes reported giving parents information about child or adolescent development, whereas lower proportions of parents in large schools (71 percent) and in city/urban fringe schools (73 percent) reported that their children's schools helped them understand the issue of child development (figure B). However, this school/parent difference was not found in small schools (78 and 75 percent) and rural schools (76 and 72 percent).

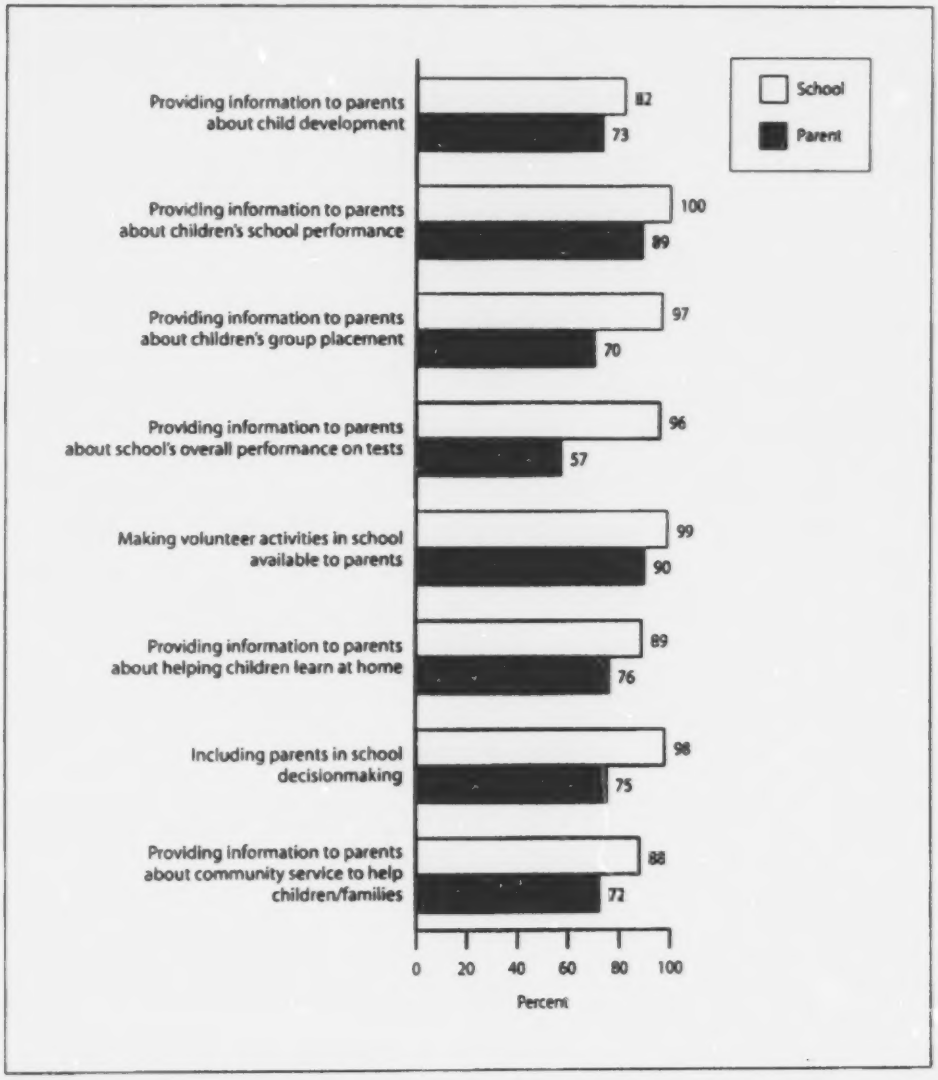
For other practices, while the discrepancies were found in all types of schools, the magnitude of the discrepancies increased with school level, size, and minority concentration. For instance, the difference between schools' and parents' reports on whether the school provided parents with information about helping children with homework was larger in middle schools than in elementary schools, in large schools than in small schools, and in high-minority enrollment schools than in low-minority enrollment schools (figure C).

There could be several explanations for these inconsistent reports, although none of them can be established empirically by this study. First, the discrepancy pattern suggests that despite schools' reported efforts, some parents were still not aware of what schools were doing to encourage their involvement. It is possible that schools have not done enough to reach out to every parent in implementing various practices. The varying gaps between schools' and parents' reports across school characteristics also suggest that schools might not be equally effective in reaching out to parents and making them aware of school programs. Elementary schools, small schools, and schools with low minority enrollment may have done a better job at this than secondary schools, large schools, and schools with high minority enrollment.

Parents may also share some of the responsibility. Although it is possible that schools are not doing "enough" to involve

[2]This survey targeted parents of 3-year-olds through 12th-graders. For comparability with the FRSS survey, parents of children who were enrolled in grades K–8 in public schools that offered no grade higher than 8 were selected for this study.

Figure A.—Percentage of public K–8 schools that reported using various practices to promote parent involvement in children's education, and percentage of K–8 public school students whose parents reported that their child's school used such practices: 1996



NOTE: Some items may not be strictly comparable between the two surveys. See table 1 of the complete report for the exact wording of the survey items used in this report.

SOURCE: U.S. Department of Education, National Center for Education Statistics: Fast Response Survey System, "Survey on Family and School Partnerships in Public Schools, K–8," FRSS 58, 1996; and the Parent and Family Involvement in Education/Civic Involvement Survey of the National Household Education Surveys Program, 1996 (PFI/CI–NHES:1996).

parents, some parents simply may not set aside enough time to pay attention to the information or opportunities provided by the school because of demanding work schedules and other family and work obligations. It is also likely that some parents, particularly those who are less involved, may have poor information about their children's schools and thus may be providing less accurate and reliable data about school programs.

The second potential explanation for the inconsistent reports may come from inaccuracy of the schools' and parents' reports. The pressure to provide socially

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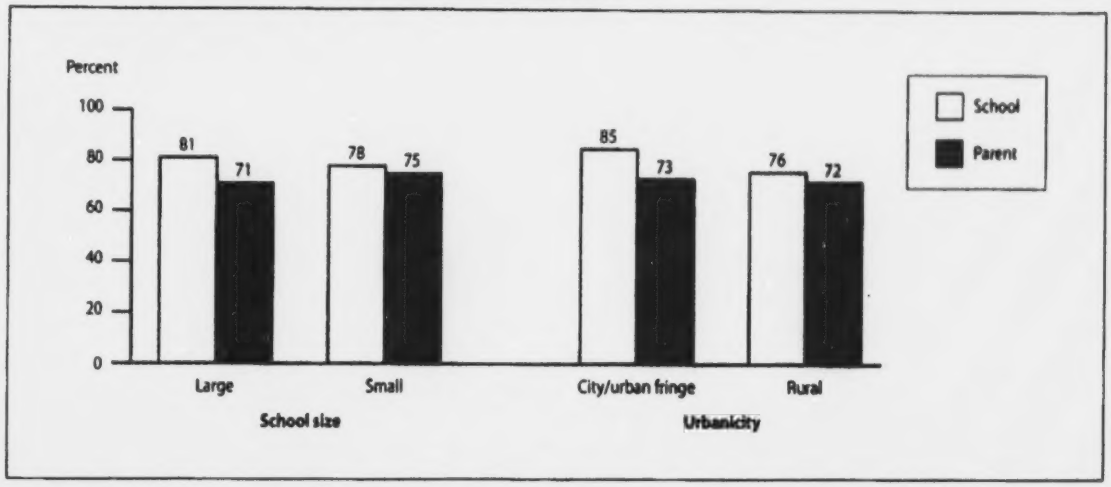
Figure B.—Percentage of public K–8 schools that reported providing parents with information about child or adolescent development, and percentage of public K–8 school students whose parents reported that their child's school helped them understand what children at the child's age are like, by school size and urbanicity: 1996



NOTE: Schools that enrolled 600 students or more were defined as large schools and those with fewer than 300 students were defined as small schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics: Fast Response Survey System, "Survey on Family and School Partnerships in Public Schools, K–8," FRSS 58,1996; and the Parent and Family Involvement in Education/Civic Involvement Survey of the National Household Education Surveys Program, 1996 (PFI/CI–NHES:1996).

appropriate responses may affect the responses of both schools and parents. The fact that schools consistently provided more favorable reports than did parents suggests that schools may have overreported their actions to involve parents. The social desirability of outreach practices may lead schools to exaggerate their efforts and report them in a favorable way. The same explanation can also be given for parents' responses. Responding to interviewers in a socially desirable way may lead parents to overstate their own behaviors and understate the actions of the schools.

In addition, schools may have inadvertently provided inaccurate information about certain practices, particularly those that are typically initiated by teachers rather than by the school (e.g., informing parents about their children's performance). For these practices, teachers' responses perhaps would be more accurate than the school reports. To remedy overreporting or reporting of inaccurate information, objective data (e.g., data collected by direct observation) or more reliable data (e.g., from teachers) may need to be collected in the future.

A third potential source for the discrepancies between the reports of schools and parents may be related to differences in the way the questions were worded in the two surveys. For example, schools in the FRSS survey were asked whether they provided information to parents about child development. However, the question in PFI/CI–NHES:1996 was posed differently: parents were asked whether their child's school helped them understand what children at their child's age are like. It is possible that parents may have received information from the school about child development, but they may not have thought that the school helped them understand the developmental characteristics of children at their child's age.

In addition, the FRSS survey did not ask schools whether their practices were targeted to all parents or only to specific groups of parents; therefore, detailed examination of schools' and parents' behaviors was not possible. This may have contributed to the discrepancies between the reports of schools and parents. For example, schools may provide child-development information only to parents of kindergartners and sixth-graders (i.e., children in "transitional" grades), not to parents of children in all grades. Although these schools may say that they used this practice, parents with children who were not in the targeted group certainly would not agree with this statement.

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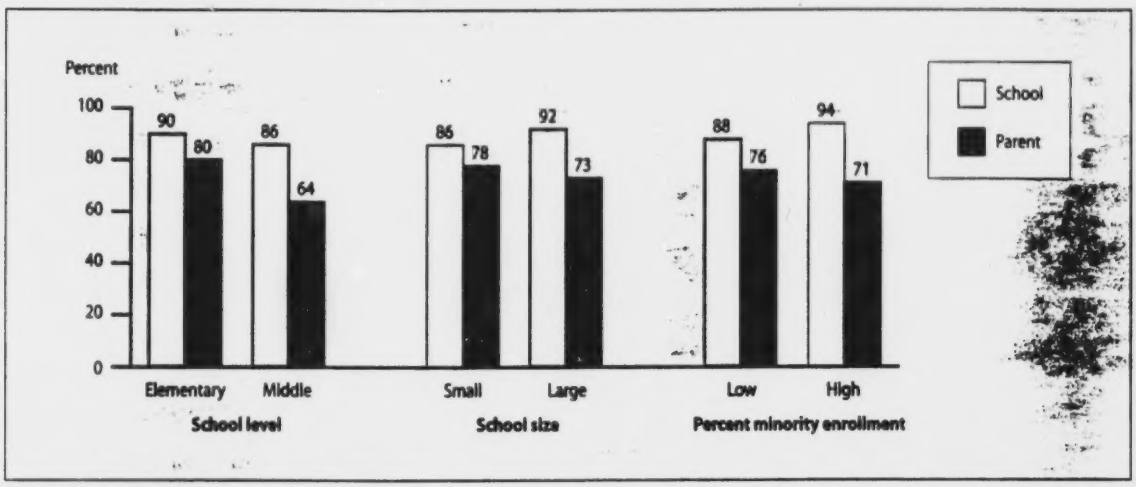
Figure C.—Percentage of public K–8 schools that reported providing parents with information about helping children with their homework, and percentage of K–8 public school students whose parents reported that they received such information from their child's school, by school level, size, and percent minority enrollment: 1996



NOTE: Schools that enrolled 600 students or more were defined as large schools, and those with fewer than 300 students were defined as small schools. Schools with more than 75 percent minority students were defined as high-minority enrollment schools, and those with less than 25 percent minority students were defined as low-minority enrollment schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics: Fast Response Survey System, "Survey on Family and School Partnerships in Public Schools, K–8," FRSS 58,1996; and the Parent and Family Involvement in Education/Civic Involvement Survey of the National Household Education Surveys Program, 1996 (PFI/CI–NHES:1996).

Consequently, parents would be less likely than schools to report such school effort.

Finally, readers should be aware that differences between the surveys in the response rates (i.e., the school response rate in the FRSS was higher than the parent response rate in PFI/CI–NHES:1996) and response bias (e.g., parents in PFI/CI–NHES:1996 underreported the size of their children's schools) may also have contributed to the school/parent discrepancies. However, it is not possible to investigate how these differences may have affected the results presented in this report.

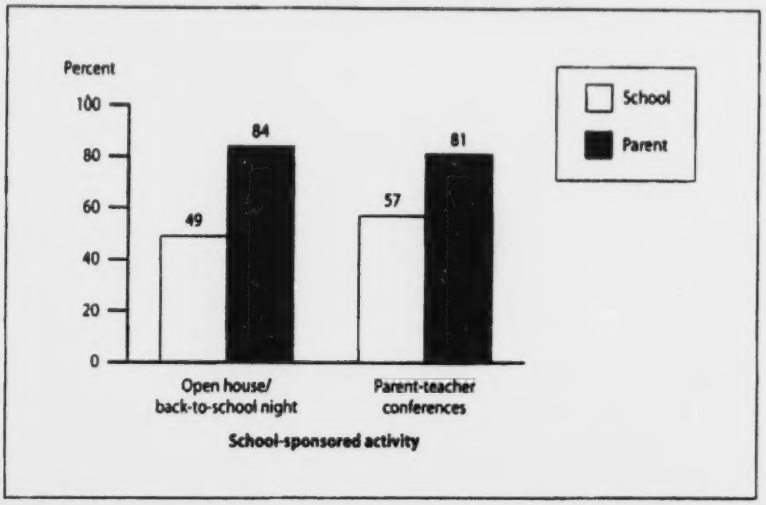
Schools' and Parents' Reports on Parent Participation in School-Sponsored Activities

Comparisons of schools' and parents' reports on the extent to which parents attended school-sponsored activities (e.g., an open house or back-to-school night and schoolwide parent-teacher conferences) also revealed discrepancies. The direction of the differences, however, was the opposite of that found for school practices, in which schools gave more favorable reports than parents did. A majority of parents said that they attended various school-sponsored events, whereas lower proportions of schools holding these events said that "most or all" parents attended them (figure D).[3] The differences between schools' and parents' reports were generally found to increase with school level, size, and the percentage of minority students enrolled (figure E), suggesting that the problem of the inconsistent reports was more pronounced in middle schools, large schools, and schools with high minority enrollment than in elementary schools, small schools, and schools with low minority enrollment.

These findings create uncertainty about the credibility of both schools' and parents' reports. Because schools and parents may both have a vested interest in reporting parents' behavior in a certain light, the reports may be distorted on both sides. The critical question becomes: did parents overreport their participation, did schools underreport

[3]These inconsistent reports may, to an extent, be due to some differences in the question wording in the two surveys. For example, in PFI/CI–NHES:1996, parents were asked whether they attended a school-sponsored event during the school year ("yes" or "no"). In the FRSS survey, schools were asked to report the best representation of typical parent attendance at a school-held event ("most or all," "more than half," "about half," "less than half," or "few"). A school could hold a particular type of event more than once during the school year. It is possible that many parents attend at least one such event, but not all of them, and the school may just consider the parent attendance at one "typical" event. Thus, the school-reported parent attendance rate is likely to be lower than the rate reported by parents.

Figure D.—Percentage of public K–8 schools that reported that most or all parents attended various school-sponsored activities, and percentage of K–8 public school students whose parents reported that they attended such activities: 1996



SOURCE: U.S. Department of Education, National Center for Education Statistics: Fast Response Survey System, "Survey on Family and School Partnerships in Public Schools, K–8," FRSS 58, 1996; and the Parent and Family Involvement in Education/Civic Involvement Survey of the National Household Education Surveys Program, 1996 (PFI/CI–NHES:1996).

parents' participation, or did both of these problems occur? In the future, more objective data may be needed to verify self-reports and obtain reliable and accurate data on parent participation in school activities. In addition, comparisons between schools' and parents' responses using samples of parents whose children attend the surveyed schools may result in more reliable information about schools' perceptions on parents' behaviors or vice versa. In other words, to examine the consistency between parents' and schools' reports, it would be better to collect parent and school data within the same survey framework rather than from two different survey systems.

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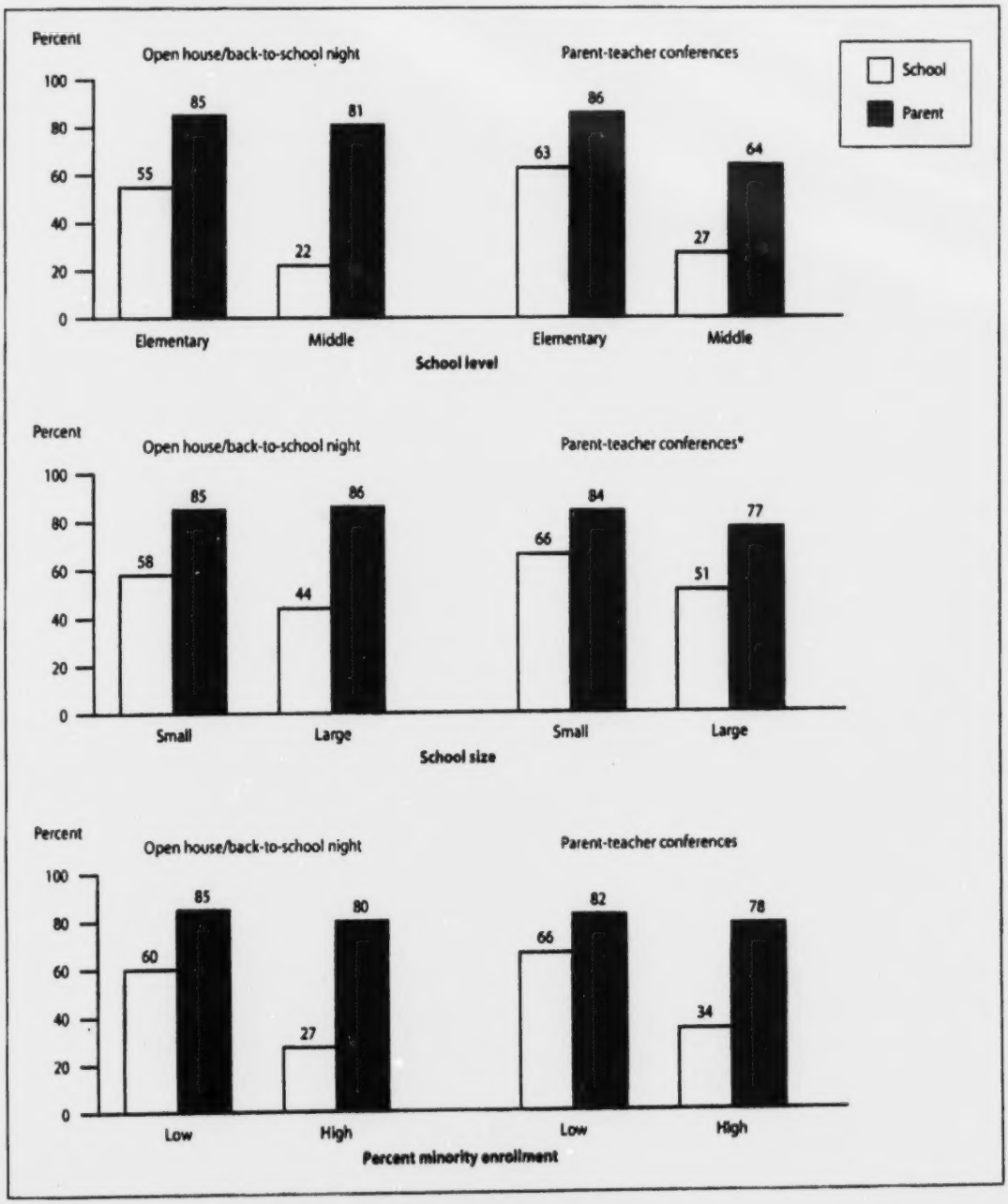
Figure E.—Percentage of public K–8 schools that reported that most or all parents attended various school-sponsored activities, and percentage of K–8 public school students whose parents reported that they attended such activities, by school level, size, and percent minority enrollment: 1996



*The gap between schools' and parents' reports was not larger in large schools than in small schools.

NOTE: Schools that enrolled 600 students or more were defined as large schools, and those with fewer than 300 students were defined as small schools. Schools with more than 75 percent minority students were defined as high-minority enrollment schools, and those with less than 25 percent minority students were defined as low-minority enrollment schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics: Fast Response Survey System, "Survey on Family and School Partnerships in Public Schools, K–8," FRSS 58, 1996; and the Parent and Family Involvement in Education/Civic Involvement Survey of the National Household Education Surveys Program, 1996 (PFI/CI–NHES:1996).

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Data source: The NCES Fast Response Survey System, "Survey on Family and School Partnerships in Public Schools, K–8," FRSS 58, 1996; and the Parent and Family Involvement in Education/Civic Involvement Survey of the National Household Education Surveys Program, 1996 (PFI/CI–NHES:1996).

For technical information, see the complete report:

Chen, X. (2001). *Efforts by Public K–8 Schools to Involve Parents in Children's Education: Do School and Parent Reports Agree?* (NCES 2001–076).

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To obtain the complete report (NCES 2001–076), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

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Participation Trends and Patterns in Adult Education: 1991 to 1999

Sean Creighton and Lisa Hudson

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the NCES National Household Education Surveys Program (NHES).

This report provides an overview of adult participation in formal learning activities (courses and programs) during the 1990s, focusing on trends in participation over time and patterns of participation in 1999. The report replicates previous studies' findings of an overall increase in participation and (with some qualifications) differences in participation rates based on age, sex, race/ethnicity, education level, labor force status, and occupation group. The report extends these findings by examining trends over time in which groups of adults participate in adult education and by providing a more detailed view of participation patterns in specific types of adult education, including the underlying determinants of these patterns.

The data for this report come from the 1991, 1995, and 1999 Adult Education Surveys of the National Household Education Surveys Program (AE–NHES:1991/1995/1999), conducted by the National Center for Education Statistics (NCES). In these surveys, adults were defined as all civilian, noninstitutionalized individuals age 16 or older who were not in elementary or secondary education at the time of the survey. Adult education activities included adult basic education and English as a Second Language (ESL) courses, apprenticeship programs, *some* programs leading to a formal (typically college) credential, courses taken for work-related reasons, and courses taken for reasons other than work (non-work-related courses). Since the continuous pursuit of formal education is typically not considered adult education, in this report full-time participation in postsecondary credential programs by those ages 16–24 is not counted as an adult education activity.

The report examines trends and patterns of participation among the groups of adults listed in table A. Participation trends in adult education overall are examined from 1991 to 1999, and changes in participation in specific types of adult education are examined from 1995 to 1999. Patterns of participation in adult education among different groups of adults are also compared in 1991 and 1999. Finally, the report also uses multivariate statistical analyses to examine the determinants of participation for work-related courses and for non-work-related courses in 1999. Some of the key questions addressed by this report are summarized below, along with the report's findings concerning each question.

Which Adults Increased Their Participation in Adult Education Between 1991 and 1999?

The overall increase in participation in adult education between 1991 and 1999 was widespread, occurring among virtually every group of adults examined in this report. Specifically, participation rates increased among the following: all age groups except those ages 35–44, both men and women, all racial/ethnic groups, all education levels, all labor force groups, and all occupation groups except those in professional or managerial positions (table A). The groups that did not increase their participation rates had some of the highest initial participation rates in 1991 and constant rates of participation thereafter.

Did the Patterns of Participation in Adult Education Among Various Groups of Adults Change Between 1991 and 1999?

Many participation patterns were the same in 1991 and 1999. In both years, adults with higher levels of education participated at higher rates than adults with lower levels of education; retired adults participated at a lower rate than those in all other labor force groups; and those in higher status occupations participated at higher rates than those in lower status occupations.

Changes in participation that did occur over time generally ameliorated differences among groups of adults. In 1991, younger and older adults participated at a lower rate than mid-aged adults, but in 1999 only older adults participated at a lower rate than those in other age groups (table A). In 1991, non-Hispanic Blacks participated at a lower rate than non-Hispanic Whites, but in 1999, all minority groups participated at the same rate as non-Hispanic Whites. In 1991, full-time workers participated at a higher rate than all other adults, but in 1999, part-time and unemployed workers participated at the same rate as full-time workers; only those not in the labor force participated at a lower rate than full-time workers. There was only one situation in which participation rates became more disparate over time: In 1991, there was no difference in participation rates by sex, but in 1999, women participated at a higher rate than men.

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Table A.—Summary of changes in participation patterns between 1991 and 1999, and 1999 patterns of participation in adult education

Group of adults	Change in participation between 1991 and 1999	1999 participation pattern
All adults	Increase in participation	Forty-six percent of adults participated.
Age		
16–24	Increase	Two oldest age groups (55–64 and 65 or older) participate at lower rates than younger age groups.
25–34	Increase	
35–44	No change	
45–54	Increase	
55–64	Increase	
65 or older	Increase	
Sex		
Male	Increase	Women participate at a higher rate than men.
Female	Increase	
Race/ethnicity		
White, non-Hispanic	Increase	No differences in participation rates between non-Hispanic Whites and other racial/ethnic groups.
Black, non-Hispanic	Increase	
Hispanic	Increase	
Other minorities	Increase	
Education level		
Less than high school	Increase	Adults with higher levels of education participate at higher rates than adults with lower levels of education.
High school	Increase	
Some college	Increase	
Bachelor's degree or higher	Increase	
Labor force status		
Employed full time	Increase	Full-time workers participate at a higher rate than those who are retired or otherwise out of the labor force. Full-time workers participate at the same rate as part-time workers and the unemployed.
Employed part time	Increase	
Unemployed	Increase	
Not in labor force, not retired	Increase	
Retired	Increase	
Occupation group		
Professional and managerial	No change	Adults in higher status occupations participate at higher rates than those in lower status occupations. (Highest participation rate for professional and managerial; lowest rate for trades)
Sales, service, and support	Increase	
Trades	Increase	

NOTE: Adults include civilian, noninstitutionalized individuals age 16 or older who are not enrolled in elementary or secondary education. Among adults ages 16–24, participation in full-time credential programs was not counted as an adult education activity.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Adult Education Survey of the National Household Education Surveys Program, 1991 and 1999 (AE–NHES:1991/1999).

In Which Types of Adult Education Did Adults Increase Their Participation Between 1995 and 1999?

Participation rates in specific types of adult education could not be examined for 1991, because the 1991 Adult Education Survey does not provide a comparable classification of education activities. Over the shorter time period between 1995 and 1999, participation rates increased overall and for all types of adult education except ESL programs and work-related courses, for which participation rates remained roughly level.

What Are the Patterns of Participation in 1999 for Each Type of Adult Education Activity?

Participation patterns vary, often in expected ways, among the four most common types of adult education (work-related courses, non-work-related courses, adult basic education, and credential programs). Participation rates in adult basic education programs, for example, are highest among the youngest adults, those with the lowest levels of education, minorities, and those in nonprofessional and nonmanagerial occupations. Participation rates in credential programs, in contrast, tend to be higher among those with

more education (up to "some college"), those in the labor force, those in professional or managerial occupations, and those with continuing education requirements.

Participation rates in the two most common learning activities (work-related courses and non-work-related courses) are lower for the oldest adults, for Hispanics compared to non-Hispanic Whites, and for those with (rather than without) continuing education requirements. Participation also increases with education level and occupational status (with the lowest participation rate for those in the trades; a higher rate for those in sales, service, or support occupations; and the highest rate for those in professional or managerial occupations). But participation in work-related courses also is lower for the youngest adults compared to mid-aged adults, and is higher for those employed full time compared to all other labor force groups. In comparison, participation rates in non-work-related courses are higher among women than men and among those employed part time rather than full time.

What Accounts for the 1999 Participation Patterns in the Two Most Popular Adult Education Activities, Work-Related Courses and Non-Work-Related Courses?

To answer this question, logistic regression equations were performed, predicting participation from adults' demographic, education, and labor force characteristics. These analyses reveal the relationship of each of these adult characteristics to participation independently of other adult characteristics.

Age

The finding that the youngest adults (ages 16–24) participate in work-related courses at a lower rate than mid-aged adults (ages 35–44) does not appear to be due to age differences in the employment characteristics of adults, as the participation difference remains when these characteristics are taken into account. It may be that employers are less likely to provide formal training to young workers compared to mid-aged workers, or that young adults have more current skills and thus less need to participate in work-related education. In contrast, adults ages 55–64 are less likely than mid-aged adults to participate in work-related education primarily because these older adults are less likely to be employed. It is less clear why adults age 65 or older participate in work-related courses at a relatively low rate. In accordance with human capital theory, these older adults may have less to gain from an investment in work-related education; however, among employed adults with the same level of income, adults age 65 or older participate in work-related education at the same rate as mid-aged adults, suggesting that differences in income and employment status also play a role. The lower participation rate of older adults (ages 55 or older) in non-work-related courses does not appear to be due to education, labor force, or income differences, and may have more to do with the interests of older adults or the targeting of course offerings.

Sex

Women's higher participation rate in non-work-related courses is not due to women having more time for these activities by virtue of working part time or not at all; even after accounting for labor force status, women participate in these courses at a higher rate than men. When women and men with the same labor force status are compared, women also participate in work-related courses at a higher rate than men. Hypothetically, this sex difference in participation in both work-related courses and non-work-related courses could result from women having a greater propensity to seek formal instruction or from a targeting of course offerings to women.

Race/ethnicity

Hispanics' lower participation rate in work-related courses is not entirely due to their education level, labor force status, occupation group, or income level; this difference remains even after accounting for these factors. Language barriers or specific occupational patterns that could not be detected in this study may account for this difference in participation rates. Hispanics' lower participation rate in non-work-related courses appears to be related to their lower average education level; when education level is accounted for, Hispanics and non-Hispanic Whites participate in non-work-related courses at the same rate.

Labor force status

Full-time workers participate in work-related courses at a higher rate than other adults regardless of age, sex, occupation group, income level, or continuing education status (i.e., whether or not the adult has continuing education requirements). This higher participation rate is probably motivated by labor market incentives that make work-related courses most available to and valuable for those employed full time. Participation rates in non-work-related courses are higher not only among part-time workers (compared to full-time workers), but also—after accounting for other factors—among those who are retired or otherwise not in the labor force (compared to those who are employed). This difference in participation rates may arise

from the greater amount of free time available to those who are employed part time or who are not in the labor force compared to those who are employed full time.

Occupation group

Participation in work-related courses is highest among those in professional and managerial occupations, even after accounting for education level and other factors; this may reflect a tendency by employers to provide more training to workers in these positions. Occupational differences in participation in non-work-related courses are related to education level; after accounting for education level, those in professional and managerial jobs participate in non-work-related courses at the same rate as other employed adults.

Education level and continuing education requirements

After accounting for other factors, those with higher levels of education and those with continuing education requirements participate in both work-related and non-work-related courses at a higher rate than do (respectively) those with lower education levels and those who do not have continuing education requirements. A common motivation may underlie these findings; those who enjoy learning of all types may be more likely to continue their formal education, enter occupations that have continuing education requirements, and participate in non-work-related courses. On the other hand, taking courses in one's post–high school years, either to continue one's formal education or to meet continuing education requirements, may help foster an interest in other types of adult education.

Summary

The increase in participation in adult education found in this report is not new. What *is* new is evidence of the breadth of this increase. Virtually every group of adults examined increased their participation in adult education between 1991 and 1999, often in ways that reduced disparities in participation that had existed in 1991. But a closer look at participation in specific activities reveals some troubling signs of groups being left behind—especially Hispanics, those with lower levels of education, those with lower status jobs, and those who are employed part time. Even after accounting for other factors, all of these groups have relatively low rates of participation in work-related courses, an adult education activity that is likely to have economic payoffs. Adults with lower levels of education also are less likely than those with higher levels of education to participate in non-work-related courses, after accounting for other factors. Thus, although the widespread increase in participation in adult education has been accompanied by an elimination of some inequities, in many cases the highly educated and high status groups that have been the traditional beneficiaries of adult education remain the main beneficiaries today.

Data source: The NCES Adult Education Survey of the National Household Education Surveys Program, 1991, 1995, and 1999 (AE-NHES:1991/1995/1999).

For technical information, see the complete report:

Creighton, S., and Hudson, L., (2001). *Participation Trends and Patterns in Adult Education: 1991 to 1999* (NCES 2002-119).

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To obtain the complete report (NCES 2002-119), call the toll-free ED Pubs number (877-433-7827) or visit the NCES Web Site *(http://nces.ed.gov).*

Invited Commentary: Household Data in the Federal Statistical System: The Role of the National Household Education Surveys Program

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This commentary represents the opinions of the author and does not necessarily reflect the views of the Office of Management and Budget or the National Center for Education Statistics.

In order to meet ever-increasing demands to carry out its responsibilities efficiently and effectively, the federal government continues to have a pressing need for data that are timely, accurate, reliable, and relevant. To inform decisions about a vast array of social, economic, housing, and educational services, federal agencies collect, analyze, use, and disseminate a wealth of information.

Much of this information is collected directly from the public—from individuals, large and small businesses, educational and nonprofit institutions, federal contractors, and state, local, and tribal governments. Narrowing the focus of this discussion to education statistics, data typically are collected by asking for information from schools (including individual schools, school districts, and state school systems), teachers, administrators, parents and, of course, students. The National Center for Education Statistics (NCES) has, over the years, made great strides in refining, improving, and expanding its family of surveys in order to create and utilize a far-reaching set of statistics that offer policymakers, researchers, and educators the pertinent information they need. Embracing an approach of continuous examination and evaluation of the methods and procedures used to collect the data can lead to substantial improvements and strengthening of the education statistics we have come to rely upon.

The two reports highlighted in this issue of the *Education Statistics Quarterly* offer an excellent view of the success, value, and contributions of the NCES-sponsored National Household Education Surveys Program (NHES). In the first report, *Efforts by Public K–8 Schools to Involve Parents in Children's Education: Do School and Parent Reports Agree?*, Xianglei Chen offers a valuable comparison of the opinions and views held by both schools and parents. By looking at the level of agreement between schools' and parents' reports, we can identify areas that are working well, and also those in need of some improvement. Because parental involvement is considered to be crucial in support of children's educational development, and because schools devote considerable resources to promoting parental involvement, the results of this study are an important asset to the education community.

In the second report, *Participation Trends and Patterns in Adult Education: 1991 to 1999*, Sean Creighton and Lisa Hudson provide important information on the degree to which adults are actively engaged in educational activities and examine trends over time to view changing patterns of participation. This study takes a careful look at six types of adult education activities and offers detailed analyses of the characteristics of participants. The key finding of this study—that participation rates in adult education increased for virtually every group of adults examined—is truly a "good news" story that reveals tremendous accomplishment in providing greater access to educational opportunities. This very positive result, however, is tempered by a detailed view of those groups that traditionally have had relatively low rates of participation in adult education. For example, the study found that Hispanics, those with lower levels of education, those with lower status jobs, and those employed part time all continued to have relatively low rates of participation in work-related adult education at the end of the 1990s. Both the positive and negative findings of this study are critically important as adult education planners develop new strategies for the coming years.

These two studies have considerable merit in and of themselves and could easily serve as the subject of extensive commentary on their own. However, it is also useful to discuss more broadly the federal statistical system and the role that NHES and other national household surveys play in providing our country with information needed for policy formulation, program evaluation and assessment, and decisionmaking. Part of this discussion involves the telephone survey methodology that is used in NHES as well as other national surveys.

The Federal Statistical System

The United States is one of a small number of countries that have highly decentralized national statistical systems. More than 70 federal agencies, or organizational units within agencies, collect statistical information, often in concert with program administration or regulatory functions. The Office of Management and Budget (OMB) provides oversight, coordination, and guidance for federal statistical

activities and promotes the quality, integrity, and efficiency of federal government statistical programs. In particular, OMB works closely with federal agencies to improve the relevance, accuracy, timeliness, and availability of federal statistics while protecting the integrity of statistical information products, respecting pledges of confidentiality, and minimizing both the reporting burden on the public and the statistical system's use of federal resources.

To ensure the quality of federal government statistical activities, careful attention is paid to the underlying statistical methods and procedures that accompany any information collection. Strengthening source data to improve their coverage, accuracy, timeliness, and quality is a goal shared by the federal statistical community at large. While considerable progress has been made in improving the overall performance and efficiency of the federal statistical system as well as the quality of the data provided by specific studies, rapid changes in our economy and society present continuing challenges to our statistical infrastructure and the methods used to obtain needed data.

The Value of Household Surveys

The surveys and censuses that support the infrastructure of the federal statistical system incorporate a wide variety of methods, procedures, and analytic approaches. The data collection methods for a specific survey are usually tailored to meet data needs and study objectives within resource and time constraints. While some data collections measure particular phenomena or are only one-time surveys, many other federal surveys are ongoing, national in scope, and serve to describe and measure important social, economic, housing, and educational dimensions of the United States.

NHES joins other household-based federal surveys—the Current Population Survey, the Consumer Expenditures Survey, the Survey of Income and Program Participation, the National Health Interview Survey, the National Immunization Survey, the National Crime Victimization Survey, and the American Housing Survey, to name just a few—in providing key indicators on critical aspects of our society. These surveys all share one important feature: they collect information from a representative sample of the U.S. population through the administration of questionnaires to household members. The voluntary participation by literally millions of people in such federal surveys directly supports the federal statistical system and is critical to the ultimate quality of the information that federal agencies produce.

Topics and Goals of NHES

The majority of national education statistics come from institution-based surveys. NHES provides the only regularly fielded education surveys that target household members. As a system of household surveys, NHES has the capability to identify, describe, and address a wide range of education-related issues that are not easily covered by surveys of institutions. For example, NHES provides information about activities that families engage in with young children that might promote these children's readiness to begin school. Most topics covered by NHES are repeated in various survey years on a rotating basis.

Included in the ongoing NHES data collection system are surveys on school readiness, early childhood program participation, parent and family involvement in education, before- and after-school programs and activities, and adult education. A particularly attractive feature of NHES, shared by many other major national surveys, is that by conducting the surveys on a repeated basis over the course of years, it provides measures of the same phenomena at different points in time. These trend analyses are very important, as they detect significant change in patterns and practice. However, NHES also has the flexibility to include one-time surveys on key topics when the need arises; for example, the 1993 collection included a survey on household members' perceptions of school safety and discipline.

NHES is designed to produce reliable estimates not only for the total U.S. noninstitutionalized population, but also for different racial/ethnic groups. Estimates by race and ethnicity are of great interest, especially for monitoring trends over time. Therefore, the NHES sample design oversamples minorities in order to increase the reliability of estimates for these groups.

Each collection of NHES begins with the screening of a representative sample of households to select participants for that year's topical surveys. The number of households screened has ranged from 45,000 to 64,000. The high costs associated with screening large numbers of households in order to meet the sample size requirements of NHES have led to a design that allows for more than one topical survey to be carried out concurrently whenever possible. In deciding which topics should be addressed in the same collection, consideration is given to the probability of households being eligible for one or more of the topical surveys. The ideal combination of topical surveys is one

that maximizes the probability of a household qualifying for a survey interview, but limits the number of households that must respond to more than one survey.

Benefits and Drawbacks of Conducting NHES by Telephone

The design of data collection methods depends on numerous factors, including the objectives of the study and the type of information sought, the length and complexity of the questionnaire, the resources available, and the urgency with which the data are needed. Any choice of data collection mode and its accompanying procedures must weigh heavily on the quality and efficiency of a project. Because of their complexity and length, most national surveys sponsored by the federal government are conducted by personal visits.

The choice to conduct a survey by telephone is typically made because the results can be quickly produced, the cost is less than a personal visit, and the survey instrument is adaptable to telephone administration (i.e., the length is not terribly great, and hand cards, calendars, and other administration tools are not needed to improve response quality). For these reasons, the telephone was chosen as the mode of administration for NHES. Households are selected for screening using list-assisted random-digit-dialing (RDD) methods, and data are collected using computer-assisted telephone interviewing (CATI) procedures.

While using the telephone as the mode of survey administration has numerous benefits, it is generally held that, compared to personal-visit surveys, certain types of survey errors will be higher for telephone surveys. Two types of errors that tend to be higher for telephone surveys are nonresponse bias and coverage bias. Nonresponse bias occurs when a significant number of the people sampled do not respond to the questionnaires *and* are different from those who do in a way that is important to the study; coverage bias occurs when the list or frame from which the sample is drawn does not include all elements of the population that the researchers wish to study (Salant and Dillman 1994).

When taking the household screening interview as well as the completed topical interviews into account, NHES has an overall response rate below 70 percent. With the advent of answering machines, cell phones, caller ID, and other technologies, it is unclear at this point how response rates for telephone surveys such as NHES will be affected and whether concerns about survey error will grow. However, NHES does have a comprehensive and sophisticated approach to addressing possible biases that might result from coverage limitations or nonresponse.

Conclusion

The family of surveys conducted by NCES is designed to address the needs of the education community and to provide accurate, timely, reliable, high-quality data for education policymakers, practitioners, and the general public. NHES is a critical component of this family of surveys, as it provides household data on a wide array of important topics. It is an excellent example of a well-designed survey that takes aggressive action to minimize nonresponse and coverage biases (as well as other types of survey errors). Household surveys such as NHES constitute a key component of the federal statistical system, as they provide a portrait of our nation's social, economic, housing, and educational characteristics. Ongoing research and evaluation efforts to improve the quality of all federal data, including those provided by NHES, will continue as our country's demand for relevant information increases. These efforts are laudable and will serve the nation, as well as the federal statistical system, well.

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Invited Commentary: When School Surveys Just Aren't Enough: Uses of the National Household Education Surveys Program

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This commentary represents the opinions of the author and does not necessarily reflect the views of the National Center for Education Statistics.

The National Center for Education Statistics (NCES) began its National Household Education Surveys Program (NHES) in 1991 in response to the increasingly evident fact that not all educationally relevant data can be collected from schools. NHES, conducted again in 1993, 1995, 1996, 1999, and 2001, consists of a rotating series of topical modules—adult education, before- and after-school programs and activities, early childhood program participation, parent and family involvement in education, and activities with family members that might promote young children's readiness to begin school. In addition to periodic surveys of these topics, NHES has fielded surveys on school safety and discipline, household library use, and civic involvement. NHES will be conducted again in 2003 and beyond, with the next administration revisiting the topics of adult education for work-related reasons as well as parent and family involvement in education.

The Utility of Household Surveys

Conducting a household survey is not a simple enterprise. In general, such surveys are more logistically difficult and demanding than are school-based surveys, or at the least create a whole new assortment of sampling and other technical problems. Household surveys require the screening of large numbers of households to get the smaller number that can provide data on the issues that the researcher cares about. Response rate becomes a particular problem, since the interviewer must first secure the participation of the household and then the participation of the proper respondent within the household. Why, then, would NCES launch a long-term and ambitious series of household surveys?

The answer is simple enough. Much of the most significant decisionmaking and resource allocation having to do with "education" (very broadly construed) takes place in households. Families, even more than schools, provide the locations at which many education policy instruments have their most direct impacts. Further, many educational events and processes are not primarily school based—household library use, noncredit adult learning, and school readiness activities are just three examples. The share of these events and processes that is not inherently school based is almost certainly getting larger. "Out-of-school schooling" takes place as families seek extraeducational opportunities for their children, as postindustrialism fuels the demand for worker reskilling, and as families and children pursue alternatives to traditional schooling. As sociologists would have it, the normative American life course is becoming more fragmented and diverse, and families are developing different strategies to pass on various resources to their children. So if everyone (with some inevitable ambiguities) by definition lives in a household, and if many educationally significant activities take place in households and away from schools, it follows that we need to study these through household surveys.

Household surveys have shown their utility elsewhere. The Current Population Survey conducted by the U.S. Census Bureau produces such important data as the monthly unemployment rate. Sociologists and demographers in particular have for years made great use of such series as the National Survey of Families and Households and the General Social Surveys. The new American Community Survey from the Census Bureau may have a similar impact over time. In fact, the household survey is the research method of choice in much of the development policy literature. As pointed out by Angus Deaton in his valuable *The Analysis of Household Surveys: A Microeconometric Approach to Development Policy* (1997), household surveys provide a means to examine the microeconomics of household budgets of families who may have little formal link to such institutions as schools or work establishments.

Two Studies That Use NHES Data

The two studies highlighted in this issue of the *Education Statistics Quarterly*—Xianglei Chen's analysis of parental involvement in children's K–8 education and Sean Creighton and Lisa Hudson's examination of trends and patterns of participation in adult education—both demonstrate the payoff of NCES's commitment to NHES. Creighton and Hudson's study is based on the Adult Education Surveys of NHES (AE–NHES:1991/1995/1999). Chen combines data from the Parent and Family Involvement in Education/Civic Involvement Survey of NHES (PFI/CI–NHES:1996) and the 1996 "Survey on Family and School Partnerships in Public Schools, K–8." The latter, a

survey of schools, is part of the NCES Fast Response Survey System (FRSS). The two surveys used by Chen are independent of one another, meaning that the children in PFI/CI–NHES are not matched to the schools in the FRSS survey. Chen builds on sociologist Joyce Epstein's useful work on the connections between schools and families (e.g., Epstein 1990).

Findings about parental involvement

Chen's concern is with the extent to which schools and parents agree or disagree about the nature of their relationships with one another. This agreement turns out to be pretty dismal. Schools tend to report that they are providing parents with both numerous opportunities to participate in school activities and adequate amounts of information about what goes on in their children's school. Parents are more likely to report that schools fall short in these efforts. Similarly, parents describe their own involvement as engaged and regular, while schools report that parents often disregard offers to participate and show far too little interest in what happens in school. The author found these discrepancies in all types of schools, but was struck that they generally increased with school level, school size, and minority concentration.

None of this is necessarily too surprising. The 1966 *Equality of Educational Opportunity* (i.e., Coleman) report showed that schools and parents often described the same schools in very different ways. One could probably find further evidence well before that, and Chen cites research that shows that parents and teachers (as well as students) give different estimates of parental involvement. What Chen has, of course, are not so much data on parental involvement as data on perceptions of parental involvement. While there is ultimately a real amount of interaction between parents and schools, it may lie somewhere between the perceptions of educators and those of parents, or it may lie beyond these extremes.

Examples of a methodological limitation

The problem of determining the actual extent of parent-school interaction raises a difficulty with household surveys. In PFI/CI–NHES, parents are asked to describe the characteristics of institutions in which they do not work, that they do not own, and often in which they spend little time. How accurately can we expect parents to report the characteristics of schools? In a methodological exercise, Chen shows that parents do make quite substantial mistakes in describing their children's schools. This by no means diminishes the value of the central findings regarding a disconnect between home and school, but it does help provide some context for these findings.

A similar problem emerges in Creighton and Hudson's comprehensive analysis of trends in participation in adult education in the 1990s. Like Chen, Creighton and Hudson rely on household members to describe the characteristics of various institutions to which they are more or less strongly linked—work establishments, colleges, and other education providers. We don't really know how well people can do this, but there is probably some slippage between how AE–NHES respondents would describe these providers and how these providers would (presumably more accurately) describe themselves. In the case of AE–NHES, the problem is less that individuals report inaccurately on the characteristics of institutions than the fact that the survey has no means by which to provide independent estimates describing providers of instruction. This is particularly evident when looking at employer-provided instruction. While we know quite a lot about how to collect good self-descriptive data from work establishments (e.g., Kalleberg et al. 1996), the challenge is still how to gather high-quality information from the employees of these establishments.

Findings about adult education

Notwithstanding the lack of independent descriptions of adult education providers, Creighton and Hudson's analysis is an informative one, remarkably attentive to detail and nuance. They provide compelling evidence of the increase in participation in adult education in the space of a single decade. This increase was as broad as it was deep—most social and demographic groups increased their participation. It also cut across most kinds of adult education. For the most part, more Americans were pursuing more kinds of adult learning at the end of the nineties than they were at the beginning of the decade.

However, Creighton and Hudson are careful to point out that not everyone participate[s] equally in adult education at the end of the decade. In both 1991 and 1999,* for example, those with lower levels of education and those with lower status jobs had relatively low rates of participation in adult education overall, in work-related adult education, and in non-work-related adult education. In 1999, rates of participation in work-related adult education also remained relatively low among Hispanics and part-time workers. This pattern presents a particular challenge as we enter a "learning society" in which one's initial experience in the

*Keep in mind that NHES is not a panel study, so that Creighton and Hudson are not examining the same individuals at these different points in time.

education system no longer suffices as preparation for the employment and civic demands brought on by rapid technological, economic, and cultural change. If Creighton and Hudson's main story is an encouraging one of increased participation and engagement in lifelong learning, it is also a warning against the ongoing marginalization of some groups and the troubling polarization of opportunities.

Conclusions drawn from these studies

Both Chen and Creighton and Hudson are judicious in their recommendations. Both, too, are candid about methodological or conceptual shortcomings. Chen puts some of the responsibility for the poor relationships between schools and parents on both parties, indicating that schools may need to be more energetic about keeping in touch with parents and that many parents may need to make a greater commitment to their children's schooling. To my mind, Chen is correct in not reducing the problem to one of "better communication" between schools and families. As considerable research has shown (see Lareau 2000 for a good example), in many cases the relationships between schools and families are rife with cultural or economic conflict that cannot be solved by simply enhancing communication. Such findings are consistent with those reported by Chen and should point policy in the direction of providing both schools and families with the means to interact more effectively. This will probably have more to do with finding ways to permit working parents and overextended teachers the material and logistic means to actually be in the same place at the same time than it will with greater "communication." Chen's study goes a long way in describing some of the constraints that have to be overcome for this to take place.

Creighton and Hudson do not comment at any length on the policy implications of their findings, but these are every bit as urgent as those arising from Chen's report. Adult education—whether job training, English as a Second Language (ESL), basic skills education, or academic or vocational credential programs—is no longer optional for successful participation in a postindustrial economy. While perhaps too often a cliche, the "learning society" is going to require a different set of institutions and expectations as technology and transformed work arrangements draw adult Americans back into the education system. Whether through incentives or sanctions, we need serious attention to policies that target employer involvement in the post-compulsory education of the marginalized groups described by Creighton and Hudson.

As the authors also show, though, not all adult education is driven by the exigencies of making a living. Americans have, and probably always have had, a remarkable attraction to education for personal growth, cultural development, or simply for distraction and amusement. (This, incidentally, is a finding that would have been resistant to discovery by anything other than a household survey.) Based in both community colleges and a range of still-vibrant clubs, civic associations, and assorted institutes, such lifelong learning gives every indication of thriving as much in the next decade as it did in the last. We need to know much more about the motivations that people have for participating in these educational activities and about reducing the barriers that stand in the way of their participation.

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The Nation's Report Card: Science Highlights 2000

This article was originally published as the NCES tabloid-style publication of the same name. The sample survey data are from the National Assessment of Educational Progress (NAEP) 1996 and 2000 Science Assessments. Some of the tables and figures from the original publication have been omitted.

Introduction

The National Assessment of Educational Progress (NAEP) is a project of the National Center for Education Statistics (NCES) in the U.S. Department of Education and is overseen by the National Assessment Governing Board (NAGB). Since 1969, NAEP has been the sole, ongoing national indicator of what American students know and can do in major academic subjects.

Over the years, NAEP has measured students' achievement in many subjects, including reading, mathematics, science, writing, history, civics, geography, and the arts. In 2000, NAEP conducted assessments in reading at grade 4 and in mathematics and science at grades 4, 8, and 12. In addition, NAEP conducted state-by-state assessments in mathematics and science at grades 4 and 8.

This publication presents highlights of national and state-level results from the NAEP 2000 Science Assessment. Results in 2000 are compared to results in 1996. Students' performance is described in terms of average scores on a 0-to-300 scale and in terms of the percentages of students attaining three achievement levels: *Basic*, *Proficient*, and *Advanced*.

Achievement levels

Achievement levels provide a context for interpreting students' performance on NAEP. These performance standards, set by NAGB and based on recommendations from broadly representative panels of educators and members of the public, determine what students should know and be able to do in each subject area and at each grade assessed:

- The *Basic* level denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade.
- The *Proficient* level—identified by NAGB as the standard all students should reach—represents solid academic performance for each grade assessed. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.
- The *Advanced* level signifies superior performance.

As provided by law, the Acting Commissioner of Education Statistics, upon review of a congressionally mandated evaluation of NAEP, has determined that the achievement levels are to be considered developmental and should be interpreted and used with caution. However, both the Acting Commissioner and NAGB believe that these performance standards are useful for understanding trends in student achievement. NAEP achievement levels have been widely used by national and state officials, including the National Education Goals Panel.

Design of the NAEP 2000 Science Assessment

Framework. The NAEP Science Framework used to develop the 2000 assessment (as well as the 1996 assessment) is organized according to two dimensions: Fields of Science, and Ways of Knowing and Doing Science. Three fields of science are addressed in the framework: earth, physical, and life sciences. The ways of knowing and doing science are conceptual understanding, scientific investigation, and practical reasoning.

Accommodations. The design of the 2000 science assessment allowed for the reporting of results that included performance data for special-needs students (i.e., students identified by their school as being either students with disabilities or limited-English-proficient students) who were assessed by NAEP using accommodations as well as for those students who took NAEP without accommodations.

Samples. The 2000 science assessment was conducted nationally at grades 4, 8, and 12 and state by state at grades 4 and 8. National results are based on the national sample and not on a combination of the state samples. The national assessment included representative samples of both public and nonpublic schools, while the state-by-state assessments included public schools only. In total, 47,000 students from 2,100 schools were assessed in the national sample and 180,000 students from 7,500 schools in the state samples.

Content of this publication

The Nation's Report Card: Science Highlights 2000 briefly describes the NAEP 2000 Science Assessment, presents results of the assessment, and provides several sample questions and student responses from the assessment. Results presented in *Science Highlights 2000* include average scores and achievement-level performance at the national and state levels, national results for selected subgroups of students, and national results in relation to students' and teachers' responses to background questionnaires.

The results presented here include only those students who were assessed without accommodations—whether or not they were identified as special-needs students. Results that include the performance of special-needs students assessed with accommodations are available on the NAEP Web Site (*http://nces.ed.gov/nationsreportcard*).

Major Findings for the Nation

National results are for students attending both public and nonpublic schools.

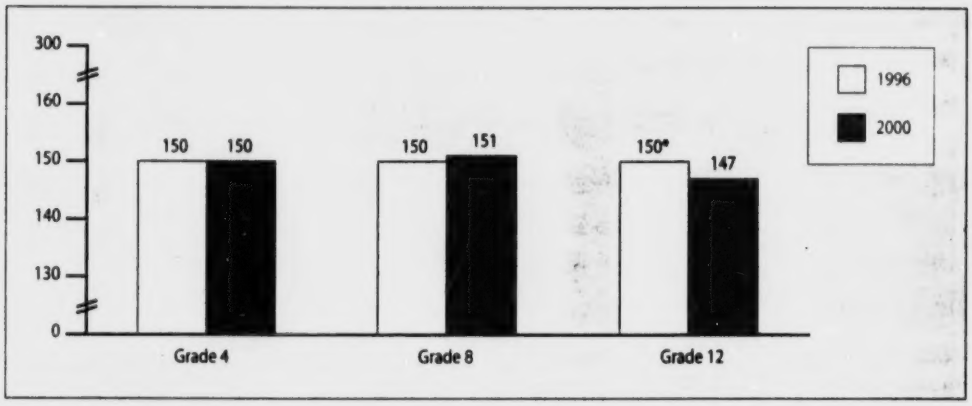
No change in national average scores at grades 4 and 8, decline at grade 12

This science assessment was first administered to nationally representative samples of fourth-, eighth-, and twelfth-grade students in 1996. Figure A shows national average scores in 1996 and 2000 based on the 0-to-300 NAEP science scale at each grade. In 2000, the average scores of fourth- and eighth-graders were essentially unchanged from 1996. The only significant change in average score results occurred at grade 12, where there was a three-point decline in students' average score.

Few changes seen in students' 2000 achievement-level performance

The 2000 science assessment results show few changes since 1996 in the percentages of students at or above any of the NAEP achievement levels (figure B). At grade 4, there was no change between 1996 and 2000 in the percentage of students attaining any of the achievement levels. At grade 8,

Figure A.—Average science scores, grades 4, 8, and 12: 1996–2000



*Significantly different from 2000.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996 and 2000 Science Assessments.
(Originally published on p. 1 of *The Nation's Report Card: Science Highlights 2000.*)

however, between 1996 and 2000 there was an increase in the percentage of students reaching the *Proficient* level or above. At grade 12, the percentage of students at or above *Basic* declined between 1996 and 2000.

Gain for highest-performing eighth-graders and decline for middle-performing twelfth-graders

An examination of scores at different percentiles on the 0-to-300 scale at each grade indicates whether or not the few changes seen in the national average science score results are reflected in the performance of lower-, middle-, and higher-performing students.

Few changes occurred between 1996 and 2000 in scores across the performance distribution. At grade 4, the percentile scores remained relatively unchanged—indicating little or no shift in the performance distribution since 1996. At grade 8, although the national average score did not change between 1996 and 2000, there was an increase in the 90th percentile score. This finding indicates that some improvement occurred among the highest-performing eighth-graders. At grade 12, consistent with the national average score results, the 50th percentile score declined between 1996 and 2000.

Results for Participating States and Jurisdictions

In addition to national results on students' science performance, the 2000 assessment collected performance data for fourth- and eighth-graders who attended public schools in states and other jurisdictions that volunteered to participate. The results of the state assessment are for students attending public schools only.

In 2000, 40 states and 5 other jurisdictions participated at grade 4, and 39 states and 5 other jurisdictions participated at grade 8. Not all jurisdictions met minimum school participation guidelines for reporting their results in 2000. Data are presented for each jurisdiction that met minimum participation guidelines at grade 4 in 2000 and at grade 8 in 1996 and/or 2000. The science state-by-state assessment was not conducted at grade 4 in 1996.

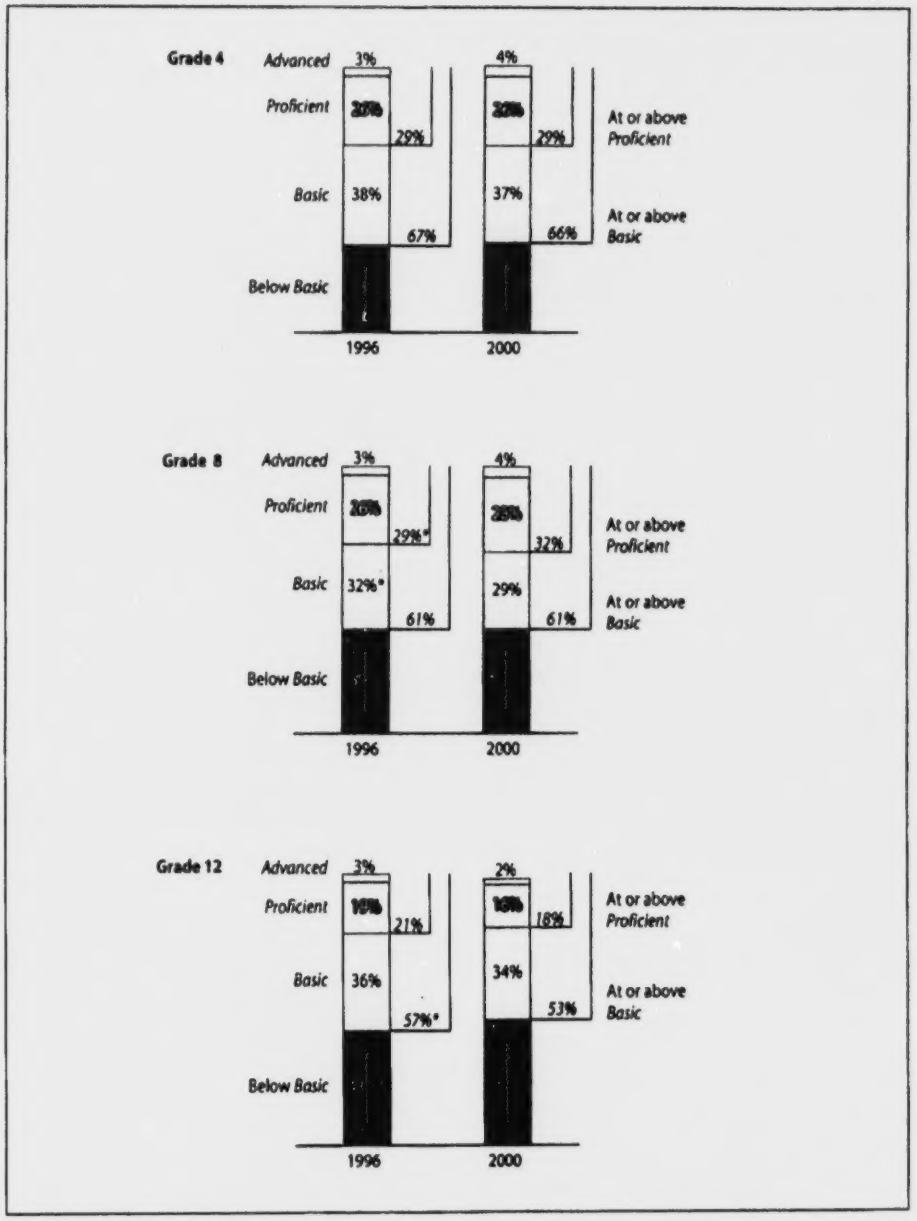
Average score results

Figure C shows states' and other jurisdictions' 2000 average score performance at grade 4 in comparison to the national average score for public schools. Of the 44 states and other jurisdictions that met minimum participation guidelines at grade 4 in 2000, 20 had scores that were higher than the national average score, 11 had scores that were not different from the national average, and 13 had scores that were lower than the national average.

Figure D shows that of the 42 states and other jurisdictions that met minimum participation guidelines at grade 8 in 2000, 18 had scores that were higher than the national average score, 11 had scores that did not differ from the national average, and 13 had scores that were lower than the national average.

A total of 36 jurisdictions met minimum participation guidelines at grade 8 in both 1996 and 2000. Of these,

Figure B.—Percentage of students within and at or above achievement levels, grades 4, 8, and 12: 1996–2000



*Significantly different from 2000.

NOTE: Percentages within each science achievement-level range may not add to 100, or to the exact percentages at or above achievement levels, because of rounding.

HOW TO READ THIS FIGURE:
- The italicized percentages to the right of the shaded bars represent the percentages of students at or above *Basic* and *Proficient*.
- The percentages in the shaded bars represent the percentages of students within each achievement level.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996 and 2000 Science Assessments. (Originally published on p. 2 of *The Nation's Report Card: Science Highlights 2000.*)

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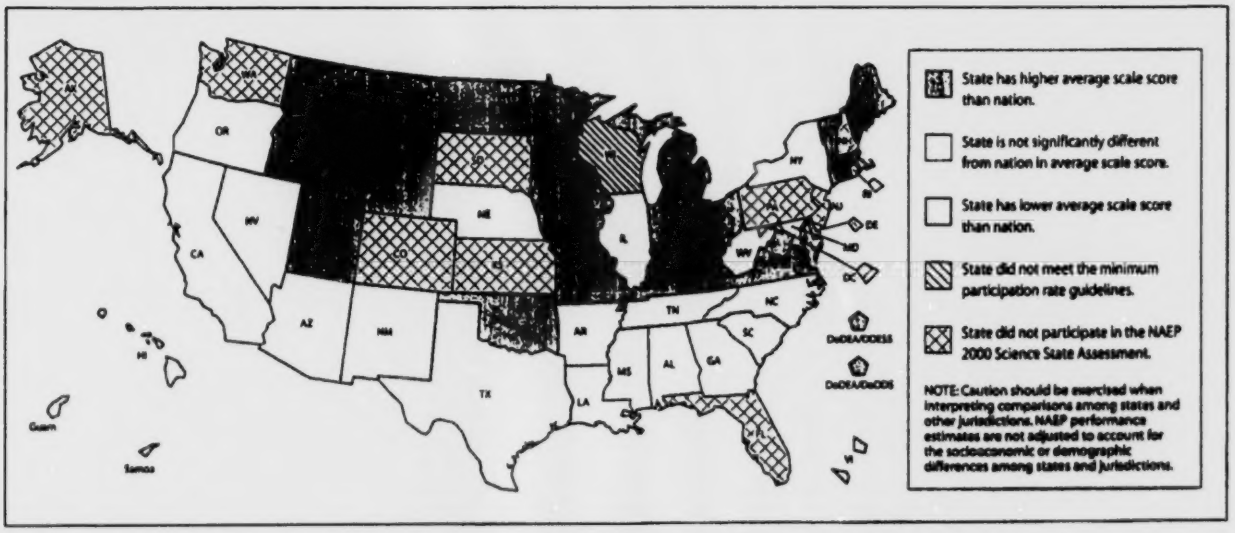
Figure C.—State versus national average score, grade 4 public schools: 2000


State has higher average scale score than nation.
State is not significantly different from nation in average scale score.
State has lower average scale score than nation.
State did not meet the minimum participation rate guidelines.
State did not participate in the NAEP 2000 Science State Assessment.
NOTE: Caution should be exercised when interpreting comparisons among states and other jurisdictions. NAEP performance estimates are not adjusted to account for the socioeconomic or demographic differences among states and jurisdictions.
DoDEA/DDESS
DoDEA/DoDDS
Guam
Samoa

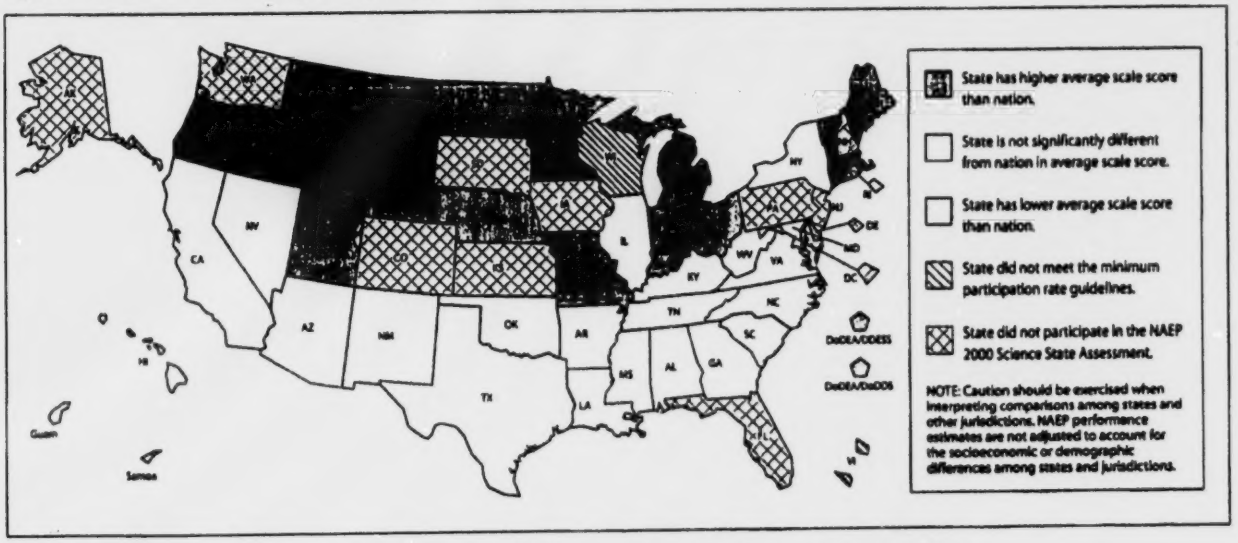
DoDEA/DDESS: Department of Defense Education Activities/Department of Defense Domestic Dependent Elementary and Secondary Schools.

DoDEA/DoDDS: Department of Defense Education Activities/Department of Defense Dependents Schools (Overseas).

NOTE: National results are based on the national sample, not on aggregated state assessment samples.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2000 Science Assessment. (Originally published as figure A on p. 4 of *The Nation's Report Card: Science Highlights 2000.*)

Figure D.—State versus national average score, grade 8 public schools: 2000


State has higher average scale score than nation.
State is not significantly different from nation in average scale score.
State has lower average scale score than nation.
State did not meet the minimum participation rate guidelines.
State did not participate in the NAEP 2000 Science State Assessment.
NOTE: Caution should be exercised when interpreting comparisons among states and other jurisdictions. NAEP performance estimates are not adjusted to account for the socioeconomic or demographic differences among states and jurisdictions.
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DoDEA/DoDDS: Department of Defense Education Activities/Department of Defense Dependents Schools (Overseas).

NOTE: National results are based on the national sample, not on aggregated state assessment samples.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2000 Science Assessment. (Originally published as figure B on p. 5 of *The Nation's Report Card: Science Highlights 2000.*)

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1 state and 2 other jurisdictions showed significant score gains since 1996: Missouri and the Department of Defense Schools (domestic and overseas).

Achievement-level results

At grade 4, 12 states and other jurisdictions had higher percentages of students at or above *Proficient* than did the nation, 17 had percentages that were not different from the percentage for the nation, and 15 had percentages that were lower than that for the nation. At grade 8, 17 states and other jurisdictions had higher percentages of students at or above *Proficient* than did the nation, 8 had percentages that were not different from the percentage for the nation, and 17 had percentages that were lower than that for the nation.

National Results for Student Subgroups

In addition to reporting information on all students' performance on its assessments, NAEP also studies the performance of various subgroups of students. Studying the science achievement of subgroups of students in 2000 reveals whether they have progressed since 1996 as well as how they performed in comparison to one another in 2000.

When reading these subgroup results, it is important to keep in mind that there is no simple, causal relationship between membership in a subgroup and science achievement. A complex mix of educational and socioeconomic factors may interact to affect student performance.

Science scores by race/ethnicity

Average scores on the NAEP science assessment are examined for five major racial/ethnic subgroups: White, Black, Hispanic, Asian/Pacific Islander, and American Indian. For most of these subgroups, average scores in 2000 were not significantly different than in 1996 across the three grades tested. However, scores for two subgroups of students have declined. American Indian students at grade 8 and White students at grade 12 both had lower scores in 2000 than in 1996 (figure E).

Comparing students' 2000 performance across subgroups indicates that some subgroups had higher average scores than others. At grade 4, White students scored higher than Black, Hispanic, or American Indian students. American Indian students also scored higher than Black students and Hispanic students.

At grade 8, White students had a higher average score than any of the other subgroups. Asian/Pacific Islander eighth-graders scored higher than Black, Hispanic, or American Indian eighth-graders. Both Hispanic and American Indian eighth-graders scored higher than Black eighth-graders.

At grade 12, White students and Asian/Pacific Islander students both scored higher than Black, Hispanic, or American Indian students. American Indian twelfth-graders had a higher average score than that of either Black or Hispanic twelfth-graders.

Differences in average science score gaps between selected racial/ethnic subgroups

The large gaps in average scores between White and Black students and between White and Hispanic students have remained relatively unchanged since 1996. None of the apparent differences in these gaps between 1996 and 2000 were statistically significant.

Achievement-level results by race/ethnicity

There was little change in the science achievement of racial/ethnic subgroups of students between 1996 and 2000. White twelfth-graders showed a decline in the percentage of students at or above *Basic*. None of the other apparent differences between 1996 and 2000 in the percentages of students at or above *Basic* or *Proficient* were statistically significant.

Comparing the performance of students in different racial/ethnic subgroups in 2000 shows that a higher percentage of White and Asian/Pacific Islander students were at or above *Basic* and *Proficient*, compared to the other subgroups. This finding was consistent across the three grades. Data for Asian/Pacific Islander students were not available at grade 4 in 2000 because special analyses raised concerns about the accuracy of the results.

Science scores by gender

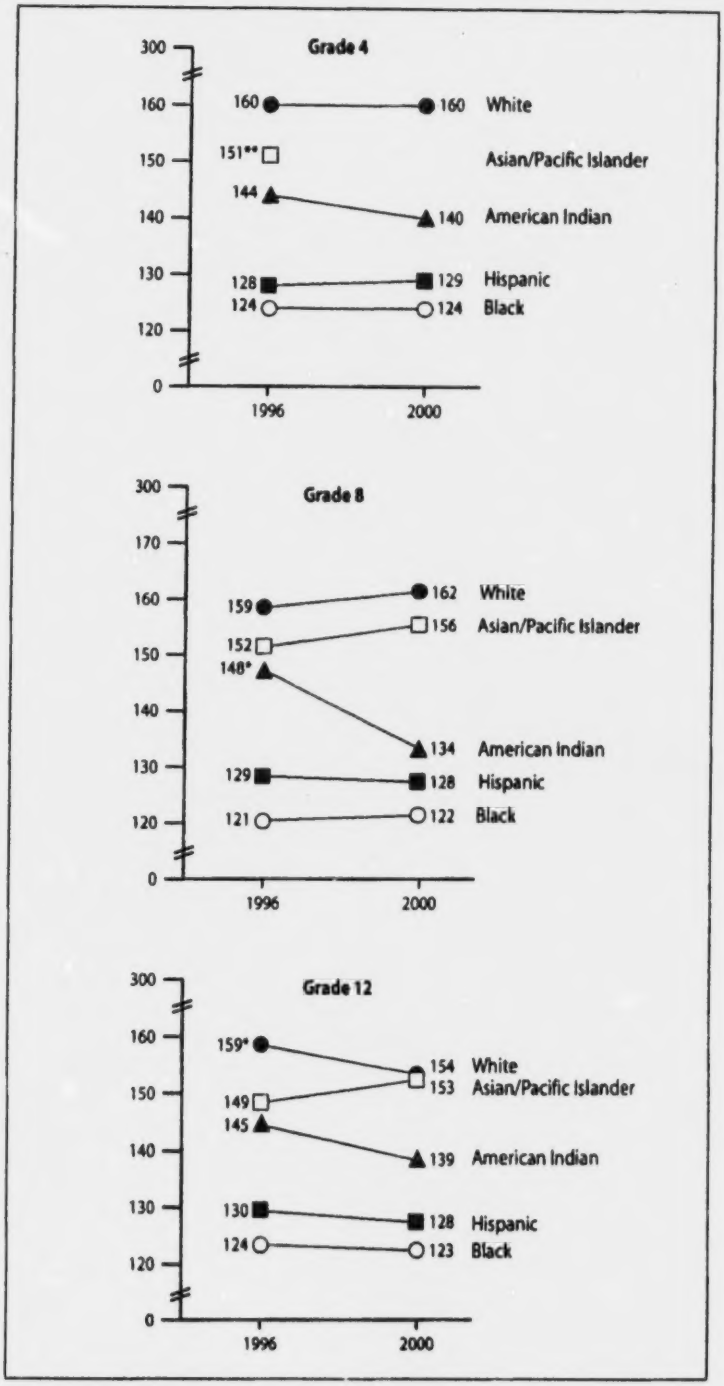
Figure F presents average science scores for males and females in 1996 and 2000. At grade 8, males' average score was higher in 2000 than in 1996, while at grade 12, males' average score declined in 2000 compared to 1996.

Comparing scores of males and females shows that males outscored females in 2000 at grades 4 and 8. The apparent difference between the scores of males and females at grade 12 was not statistically significant.

Differences in average science score gaps between males and females

Between 1996 and 2000, the score gaps favoring males over females widened by three points at grade 4 and by five points

Figure E.—Average science scores by race/ethnicity, grades 4, 8, and 12: 1996–2000



*Significantly different from 2000.

**Special analyses raised concerns about the accuracy and precision of national grade 4 Asian/Pacific Islander results in 2000. As a result, they are omitted here. (See technical notes on the NAEP Web Site [*http://nces.ed.gov/nationsreportcard*].)

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996 and 2000 Science Assessments. (Originally published on p. 8 of *The Nation's Report Card: Science Highlights 2000.*)

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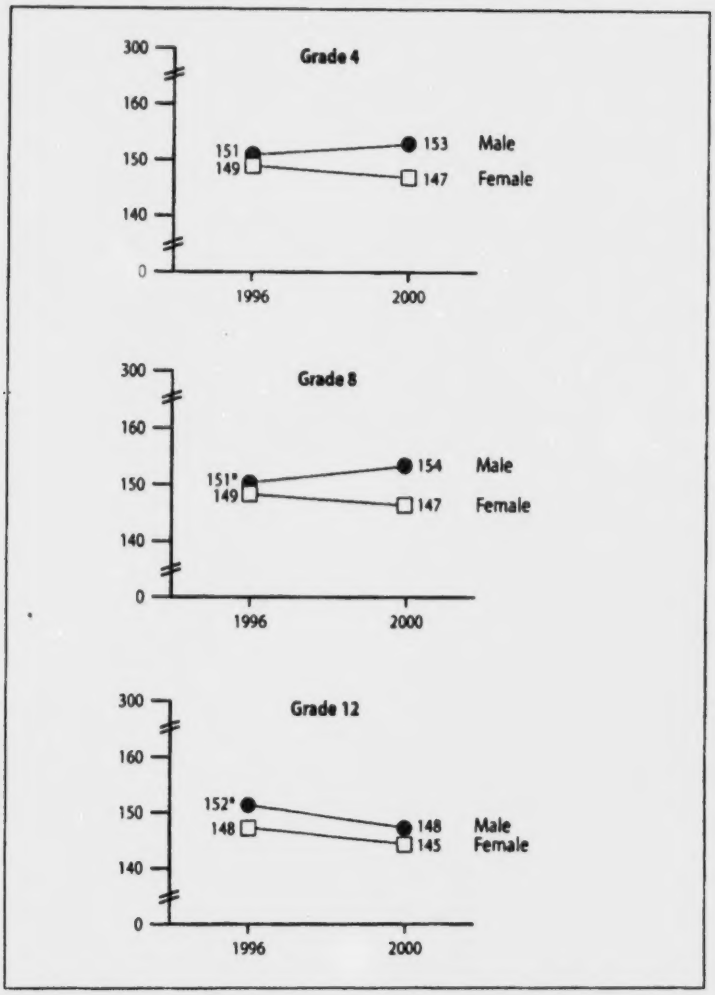
Figure F.—Average science scores by gender, grades 4, 8, and 12: 1996–2000



*Significantly different from 2000.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996 and 2000 Science Assessments. (Originally published on p. 10 of *The Nation's Report Card: Science Highlights 2000.*)

at grade 8. At grade 12, the apparent narrowing of the gap in 2000 compared to 1996 was not statistically significant.

Achievement-level results by gender

Between 1996 and 2000, few changes occurred in the percentages of males and females at or above the *Proficient* level and at or above the *Basic* level. The only changes that occurred were among male students. At grade 8, the percentage of male students at or above *Proficient* increased between 1996 and 2000. At grade 12, however, the percentage of male students at or above *Basic* declined during the same time period.

Comparing the performance of males and females on the 2000 assessment reveals that there were higher percentages of males at or above the *Proficient* achievement level at all

three grades and higher percentages of males at or above the *Basic* level at grades 4 and 8.

The Role of Teacher and Student Factors in Science Performance

As part of the NAEP 2000 Science Assessment, students and teachers were asked various questions related to their background and classroom practices. Relationships were investigated between student performance on the assessment and responses to questions about teachers' undergraduate major, how computers were used in the classroom, and student coursetaking. While these findings may suggest a positive or negative relationship between performance on the science assessment and certain practices, it is important to remember that the relationships are not necessarily causal—there are many factors that play a role in science performance.

Teachers' undergraduate major related to science scores at grade 8

Results of the 2000 assessment show that while teachers' undergraduate major was not related to performance at grade 4, eighth-graders whose teachers majored in science education had higher average scores than eighth-graders whose teachers did not. While these results might suggest that teachers' undergraduate major has an impact on student performance at grade 8, it is also possible that teachers' educational background could influence the classes they are assigned to teach, so that teachers with specialized degrees teach classes with high-performing students.

Certain types of computer use in the classroom associated with higher science scores

Finding the best ways to use computers to enhance learning has been a challenge to many educators. Results of the 2000 assessment show that fourth-graders whose teachers reported using computers for playing learning games had higher scores than fourth-graders whose teachers did not. At grade 8, students whose teachers used computers for simulations and models or for data analysis scored higher than students whose teachers did not indicate doing so.

Twelfth-grade students were asked how frequently they used computers to collect data using probes, download data, analyze data, or exchange information via the Internet. Of the two-thirds of the twelfth-grade sample taking a science course in their senior year, those who reported using computers to collect data, download data, or analyze data had higher scores than those students who reported never doing so. More frequent use (1–2 times per month) of computers to collect data or to analyze data was also associated with higher scores than less frequent use (less than once a month).

Science courses related to scores at grades 8 and 12

Science achievement has been shown to vary depending on the type of science courses students take. Results from the 2000 assessment show that eighth-grade students who were not taking science performed the lowest (figure G). Eighth-grade students enrolled in a life science course had lower scores than their peers enrolled in earth science, integrated science, physical science, or general science.

Twelfth-graders who had taken first-year biology, first-year chemistry, or first-year physics at some point since eighth grade had higher scores than students who had not (figure H). The performance of twelfth-grade students did not differ by whether or not they had taken general science at any time in high school.

Sample Science Questions and Student Responses

An understanding of students' performance on the NAEP 2000 Science Assessment can be gained by examining individual test questions and how students responded. The types of questions shown here—one multiple-choice and one constructed-response for each grade—are typical of those used in the science assessment. The tables that accompany these sample questions show two types of percentages: the overall percentage of students who answered successfully and the percentage of students at each achievement level who answered successfully.* The oval corresponding to the correct multiple-choice response is darkened, and sample student constructed responses scored "Complete" or "Essential" are provided. Additional sample questions can be viewed on the NAEP Web Site *(http://nces.ed.gov/nationsreportcard)*.

Grade 4 sample questions and responses

Fourth-grade students are expected to be familiar with internal parts of the human body. The following multiple-choice question, which probed conceptual understanding in the field of life science, required students to demonstrate an understanding of the function of the esophagus.

*The overall percentage answering successfully includes students who were below the *Basic* level. The achievement levels correspond to different score ranges on the NAEP science composite scale that was developed for each grade. On the grade 4 scale, *Basic* is 138–169, *Proficient* is 170–203, and *Advanced* is above 203. On the grade 8 scale, *Basic* is 143–169, *Proficient* is 170–206, and *Advanced* is above 206. On the grade 12 scale, *Basic* is 145–177, *Proficient* is 178–209, and *Advanced* is above 209.

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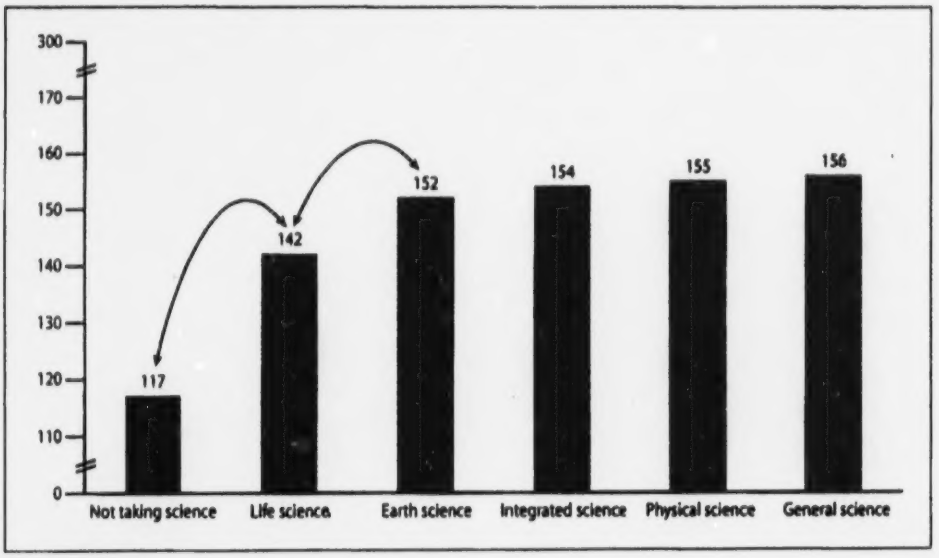
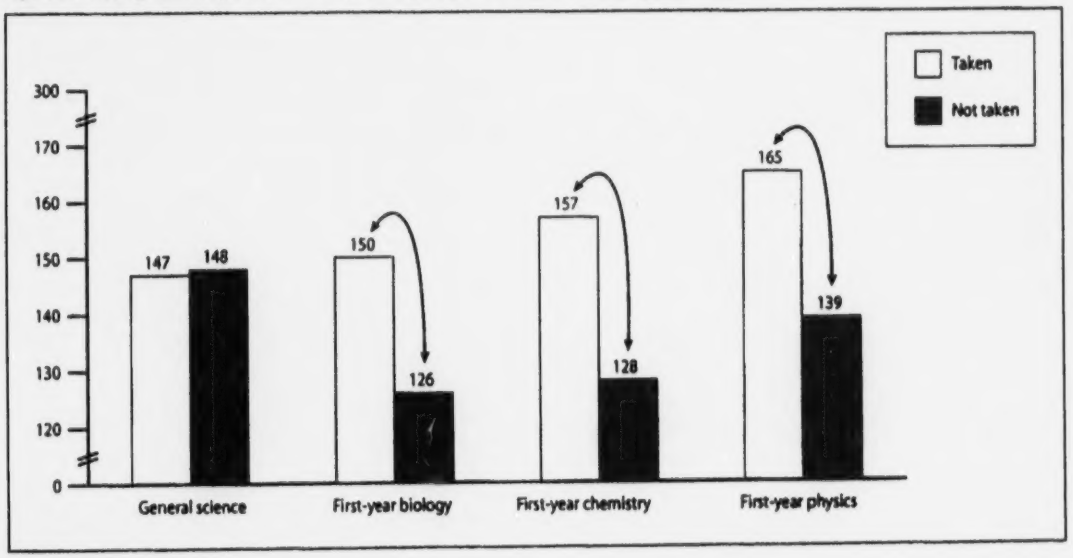
Figure G.—Average scores by current science course, grade 8: 2000



^ Significantly different average scores.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2000 Science Assessment. (Originally published on p. 12 of *The Nation's Report Card: Science Highlights 2000.*)

Figure H.—Average scores by enrollment since the eighth grade in science courses, grade 12: 2000

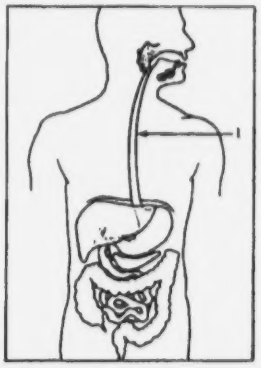


^ Significantly different average scores.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2000 Science Assessment. (Originally published on p. 12 of *The Nation's Report Card: Science Highlights 2000.*)

Sample multiple-choice question for grade 4

Percentage of students giving correct response			
	Within achievement level		
Overall	*Basic*	*Proficient*	*Advanced*
55	55	75	90



Look at the picture above, which shows some of the organs that can be found inside the human body. What is the main job of the organ labeled 1?

- Ⓐ *Carrying air*
- ● *Carrying food*
- Ⓒ *Carrying blood*
- Ⓓ *Carrying messages from the brain*

The following short constructed-response question, which probed fourth-graders' conceptual understanding in the field of earth science, required students to recognize the interaction between the Earth's atmosphere and hydrosphere as it relates to the water cycle. Responses to the question were scored on a three-level scale: "Unsatisfactory," "Partial," or "Complete." A "Complete" response needed to recognize that the Earth does not run out of rain because there is a repeating cycle in which rain leads to evaporation and a recurrence of rain.

Sample short constructed-response question for grade 4

Percentage of students giving "Complete" response			
	Within achievement level		
Overall	*Basic*	*Proficient*	*Advanced*
28	26	45	65

Think about where rain comes from and explain why the Earth never runs out of rain.

Sample "Complete" response

This "Complete" response to the question stated the basic steps of the Earth's water cycle and demonstrated understanding that the steps repeat in a cyclical pattern.

When we get rain it evaprates and rains again.

Grade 8 sample questions and responses

Eighth-grade students are expected to be able to perform an activity separating mixtures into their components. The following multiple-choice question, which probed practical reasoning abilities in the field of physical science, asked students to recognize the appropriate laboratory equipment needed to separate a mixture of given composition into its components.

Sample multiple-choice question for grade 8

Percentage of students giving correct response			
	Within achievement level		
Overall	*Basic*	*Proficient*	*Advanced*
59	59	71	81

All of the following would be helpful in separating a mixture of sand and salt EXCEPT

- ● *a magnet*
- Ⓑ *a glass cup*
- Ⓒ *a filter paper and funnel*
- Ⓓ *water*

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The following short constructed-response question, which probed eighth-graders' practical reasoning abilities in the field of earth science, asked students to apply the concepts of weathering and erosion to a practical situation involving the deterioration of a stone monument placed in New York City. Responses to the question were scored on a three-level scale: "Unsatisfactory," "Partial," or "Complete."

Sample short constructed-response question for grade 8

Percentage of students giving "Complete" response			
	Within achievement level		
Overall	*Basic*	*Proficient*	*Advanced*
28	28	47	71

Cleopatra's Needle is a large stone monument that stood in an Egyptian desert for thousands of years. Then it was moved to New York City's Central Park. After only a few years, its surface began crumbling.

Sample "Complete" response

This "Complete" response to the question stated two valid reasons for the damage to the stone monument and gave a possible way of preventing its further deterioration.

What probably caused this crumbling?

Because of the pollution and acid rain.

New York City wants to keep Cleopatra's Needle in the same location in Central Park. How can the city prevent further damage to the stone?

They could put a roof over it or something to protect it from the rain.

Grade 12 sample questions and responses

The following multiple-choice question, which probed twelfth-graders' conceptual understanding in the field of earth science, required students to understand the model of the solar system as well as to recognize the concept that an object appears larger when it is closer than when it is far away. Knowledge of both these areas was necessary for students to apply the concept of the apparent size of an object depending on its proximity to the model of the solar system.

Sample multiple-choice question for grade 12

Percentage of students giving correct response			
	Within achievement level		
Overall	*Basic*	*Proficient*	*Advanced*
41	43	60	75

As observed with special instruments from Earth, the Sun appears in the sky to be slightly larger in January than in July. Which of the following accounts for this observation?

- ● *The Earth moves in an orbit that is not circular but is closer to the Sun in January than in July.*
- Ⓑ *The diameter of the Earth is not constant, but bulges slightly at the Equator and contracts slightly during the winter.*
- Ⓒ *The Earth's orbit is not in the same plane as the orbits of the other planets.*
- Ⓓ *The axis of rotation of the Earth is not perpendicular to the plane of its orbit but instead is tilted at an angle.*

The following extended constructed-response question asked twelfth-graders to design a step-by-step procedure to determine the density of a metal ring and to specify the necessary laboratory equipment. Responses were scored on a four-level scale: "Unsatisfactory," "Partial," "Essential," or "Complete." The most common "Complete" procedure is to measure the mass and volume of the ring, and divide mass by volume to obtain the density. The question asked students to demonstrate their ability to design scientific investigations in the field of physical science.

Sample extended constructed-response question for grade 12

Percentage of students giving "Essential" or better response			
	Within achievement level		
Overall	*Basic*	*Proficient*	*Advanced*
19	18	58	89

One characteristic that can be used to identify pure metals is density. If you determine the density of a pure metal, you can determine what the metal is, as shown in the table below.

Metal	Gold	Lead	Silver	Copper	Tin
Density (gram/cm^3)	19.3	11.3	10.5	8.9	7.3

Suppose that you have been given a ring and want to determine if it is made of pure gold. Design a procedure for determining the density of the ring. Explain the steps you would follow, including the equipment that you would use, and how you would use this equipment to determine the ring's density.

Sample "Complete" response

This "Complete" response to the question specified all three steps of the procedure—measuring the ring's mass, measuring the ring's volume, and calculating the ring's density—along with the proper equipment.

I would a determine the objects mass by using a scale. Then I would drop the object into a beaker of water and measure its displacement, which is its volume. I would the divide the mass by the volume.

Sample "Essential" response

This "Essential" response specified two of the three steps of the procedure—measuring the ring's mass and measuring the ring's volume—along with the proper equipment. The step involving the calculation of the ring's density was missing.

I would weigh it on a scale in grams. I would also place it in a beaker filled with water and see the displacement when it is added compared to the other rings.

Data source: The National Assessment of Educational Progress (NAEP) 1996 and 2000 Science Assessments.

For technical information, see the NAEP Web Site: *http://nces.ed.gov/nationsreportcard*

For questions about content, contact Holly Spurlock *(holly.spurlock@ed.gov).*

To obtain the complete publication (NCES 2002–452), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov),* or contact GPO (202–512–1800).

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Assessing the Best: NAEP's 1996 Assessment of Twelfth-Graders Taking Advanced Science Courses

Christine Y. O'Sullivan and Wendy S. Grigg

This article was originally published as the Highlights of the Statistical Analysis Report of the same name. The sample survey data are from the National Assessment of Educational Progress (NAEP) 1996 Science Assessment.

Introduction

The National Assessment of Educational Progress (NAEP) is the nation's only ongoing survey of what students know and can do in various subject areas. Authorized by Congress and administered by the National Center for Education Statistics (NCES) in the U.S. Department of Education, NAEP regularly reports to the public on the educational progress of students in grades 4, 8, and 12.

In addition to the main NAEP science assessment that was conducted at all three grade levels in 1996, a special study was done that focused on 12th-grade students taking advanced science courses in biology, chemistry, or physics during the 1995–96 school year. The purpose of the study was to assess what the top science students in the country know and can do in these subject areas.

The results of the study are presented in this report, which includes information on the science courses students reported taking, their overall performance on the advanced science study, and performance results for selected questions. Students' overall performance on the advanced science study is reported using two scales, a biology scale and a chemistry/physics scale.* Wherever possible, information is also provided for students who participated in the 1996 main NAEP science assessment, including data for the subgroup of students who were not enrolled in advanced science courses.

Highlights

The following are some of the major findings from this study.

Science coursetaking

- An estimated 23 percent of all 12th-grade students were taking advanced science courses in the 1995–96 school year.
- Sixty-nine percent of students in the advanced science study and 23 percent of the students from the main NAEP assessment who were not enrolled in an advanced science course reported taking seven or more semesters of science.
- Female students who participated in the advanced science study were more likely than males to go beyond 1 year of coursework in biology.
- More than two-thirds of the students who participated in the advanced science study reported taking 1 or more years of biology (98 percent), chemistry (94 percent), or physics (70 percent). While a similar proportion of students who were not taking an advanced science course reported taking 1 or more years of biology (92 percent), there were fewer students taking 1 or more years of chemistry or physics (60 percent and 23 percent, respectively).

Performance on the advanced science study

- Males outperformed females on questions that measured students' knowledge of chemistry and physics (table A).
- White students and Asian/Pacific Islander students had higher scale scores than Black students and Hispanic students for chemistry/physics and biology (tables A and B).
- The average scale scores of students who attended public and nonpublic schools were about the same.

Performance on questions common to the advanced science study and the main assessment

- Students in the advanced science study were more likely than students in the main NAEP science assessment to respond correctly to the set of common questions administered to both groups. The difference in scores on common questions between the advanced study and the main NAEP assessment ranged from 2 to 19 percentage points (table C).
- In general, constructed-response questions in the advanced science study were more difficult than multiple-choice questions and tended to have a higher percentage of omits than multiple-choice questions. This was also true for the main NAEP assessment.

*The results for chemistry and physics were combined into a single scale in order to be consistent with the main NAEP science assessment, in which similar questions were grouped together under the broad domain of "physical science."

Table A.—Chemistry/physics advanced science study scale scores, by gender, race/ethnicity, and type of school: 1996

	Chemistry/physics scale score
Total	**175**
Male	181
Female	169
White	180
Black	150
Hispanic	153
Asian/Pacific Islander	178
Public schools	175
Nonpublic schools	172
Catholic schools	171
Other nonpublic	175

NOTE: Average scores are based on a scale that ranges from 0 to 300.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996 Science Assessment. (Originally published as table 2.7 on p. 13 of the complete report from which this article is excerpted.)

Table B.—Biology advanced science study scale scores, by gender, race/ethnicity, and type of school: 1996

	Biology scale score
Total	**173**
Male	174
Female	172
White	178
Black	149
Hispanic	155
Asian/Pacific Islander	172
Public schools	173
Nonpublic schools	172
Catholic schools	170
Other nonpublic	175

NOTE: Average scores are based on a scale that ranges from 0 to 300.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996 Science Assessment. (Originally published as table 2.6 on p. 13 of the complete report from which this article is excerpted.)

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Table C.—Percentage correct on common items for students in the advanced science study and main NAEP: 1996

Content domain	Item type[1]	Question score in advanced study[2]	Question score in main NAEP[3]
Biology			
Theory of Evolution	mc	71	53
Major Plant Group	mc	45	35
Evolutionary Relationships	mc	33	31
Temperature Regulation	scr	57	49
Cause of Menstruation	scr	20	13
Research Project	ecr	35	26
Chemistry			
Stoichiometry	mc	88	76
Exothermic Reaction	mc	69	57
Ionic Properties	mc	57	41
Neutralization	scr	41	22
Test for pH	scr	41	28
Rate of Movement	scr	32	25
Physics			
Acceleration	mc	89	74
Nuclear Decay	mc	73	59
Path of Car on Ice	mc	64	54
Electrical Circuits	scr	57	47
Predict Composition of Object	scr	25	22
Devise Density Experiment	ecr	37	23

[1]mc = multiple-choice, scr = short constructed-response, ecr = extended constructed-response

[2]Question score obtained by students who participated in the advanced science study.

[3]Question score obtained by all students who took part in the main NAEP science assessment.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996 Science Assessment. (Originally published as table 3.13 on p. 42 of the complete report from which this article is excerpted.)

Data source: The National Assessment of Educational Progress (NAEP) 1996 Science Assessment.

For technical information, see the complete report:

O'Sullivan, C.Y., and Grigg, W.S. (2001). *Assessing the Best: NAEP's 1996 Assessment of Twelfth-Graders Taking Advanced Science Courses* (NCES 2001–451).

Author affiliations: C.Y. O'Sullivan and W.S. Grigg, Educational Testing Service.

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Dropout Rates in the United States: 2000

Phillip Kaufman, Martha Naomi Alt, and Christopher D. Chapman

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data come primarily from the U.S. Census Bureau's October Current Population Survey (CPS), and the universe data primarily from the NCES Common Core of Data (CCD).

This report is the 13th in a series of National Center for Education Statistics (NCES) reports on high school dropout and completion rates. It presents data on rates in 2000, the most recent year for which data are available, and includes time series data on high school dropout and completion rates for the period 1972 through 2000. In addition to extending time series data reported in earlier years, this report examines the characteristics of high school dropouts and high school completers in 2000. It shows that while progress was made during the 1970s and 1980s in reducing high school dropout rates and increasing high school completion rates, these rates have remained comparatively stable during the 1990s.

Event Dropout Rates

Event dropout rates for 2000 describe the proportion of youth ages 15 through 24 who dropped out of grades 10–12 in the 12 months preceding October 2000. Demographic data collected in the Current Population Survey (CPS) permit event dropout rates to be calculated across various individual characteristics, including race/ethnicity, sex, region of residence, and income level.

- Five out of every 100 young adults enrolled in high school in October 1999 left school before October 2000 without successfully completing a high school program (tables A and B). The percentage of young adults who left school each year without successfully completing a high school program decreased from 1972 through 1987. Despite year-to-year fluctuations, the percentage of students dropping out of school each year has stayed relatively unchanged since 1987 (figure A).
- In 2000, young adults living in families with incomes in the lowest 20 percent of all family incomes were six times as likely as their peers from families in the top 20 percent of the income distribution to drop out of high school.
- In 2000, about three-fourths (75.8 percent) of the current-year dropouts were ages 15 through 18; moreover, about two-fifths (42.0 percent) of the dropouts were ages 15 through 17.

Table A.—Percentage of 15- through 24-year-olds who dropped out of grades 10–12 in the past year, percentage of 16- through 24-year-olds who were dropouts, and percentage of 18- through 24-year-olds who had completed high school, by race/ethnicity: October 2000

Dropout and completion measures	Total[1]	White, non-Hispanic	Black, non-Hispanic	Hispanic	Asian/Pacific Islander
Percentage of 15- through 24-year-olds who dropped out of grades 10–12, October 1999 to October 2000 (event dropout rate)	4.8	4.1	6.1	7.4	3.5
Percentage of 16- through 24-year-olds who were dropouts in 2000 (status dropout rate)	10.9	6.9	13.1	27.8	3.8
Percentage of 18- through 24-year-olds who were high school completers in 2000[2] (completion rate)	86.5	91.8	83.7	64.1	94.6

[1]Due to small sample sizes, American Indians/Alaska Natives are included in the total but are not shown separately.

[2]Excludes those still enrolled in high school.

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, Current Population Survey (CPS), October 2000.

Table B.—Event dropout rates and number and distribution of 15- through 24-year-olds who dropped out of grades 10–12, by background characteristics: October 2000

Characteristic	Event dropout rate (percent)	Number of event dropouts (thousands)	Population enrolled (thousands)	Percent of all event dropouts	Percent of population enrolled
Total	4.8	488	10,126	100.0	100.0
Sex					
Male	5.5	280	5,087	57.4	50.2
Female	4.1	208	5,039	42.6	49.8
Race/ethnicity[1]					
White, non-Hispanic	4.1	276	6,786	56.6	67.0
Black, non-Hispanic	6.1	91	1,510	18.6	14.9
Hispanic	7.4	100	1,351	20.5	13.3
Asian/Pacific Islander	3.5	13	379	2.7	3.7
Family income[2]					
Low income	10.0	141	1,408	28.9	13.9
Middle income	5.2	298	5,728	61.1	56.6
High income	1.6	48	2,990	9.9	29.5
Age[3]					
15–16	2.9	84	2,924	17.2	28.9
17	3.5	121	3,452	24.8	34.1
18	6.1	165	2,721	33.8	26.9
19	9.6	70	724	14.3	7.1
20–24	16.1	49	305	10.0	3.0
Region					
Northeast	3.9	73	1,849	15.0	18.3
Midwest	4.4	109	2,481	22.3	24.5
South	6.2	220	3,543	45.1	35.0
West	3.8	86	2,253	17.6	22.2

[1]Due to small sample sizes, American Indians/Alaska Natives are included in the total but are not shown separately.

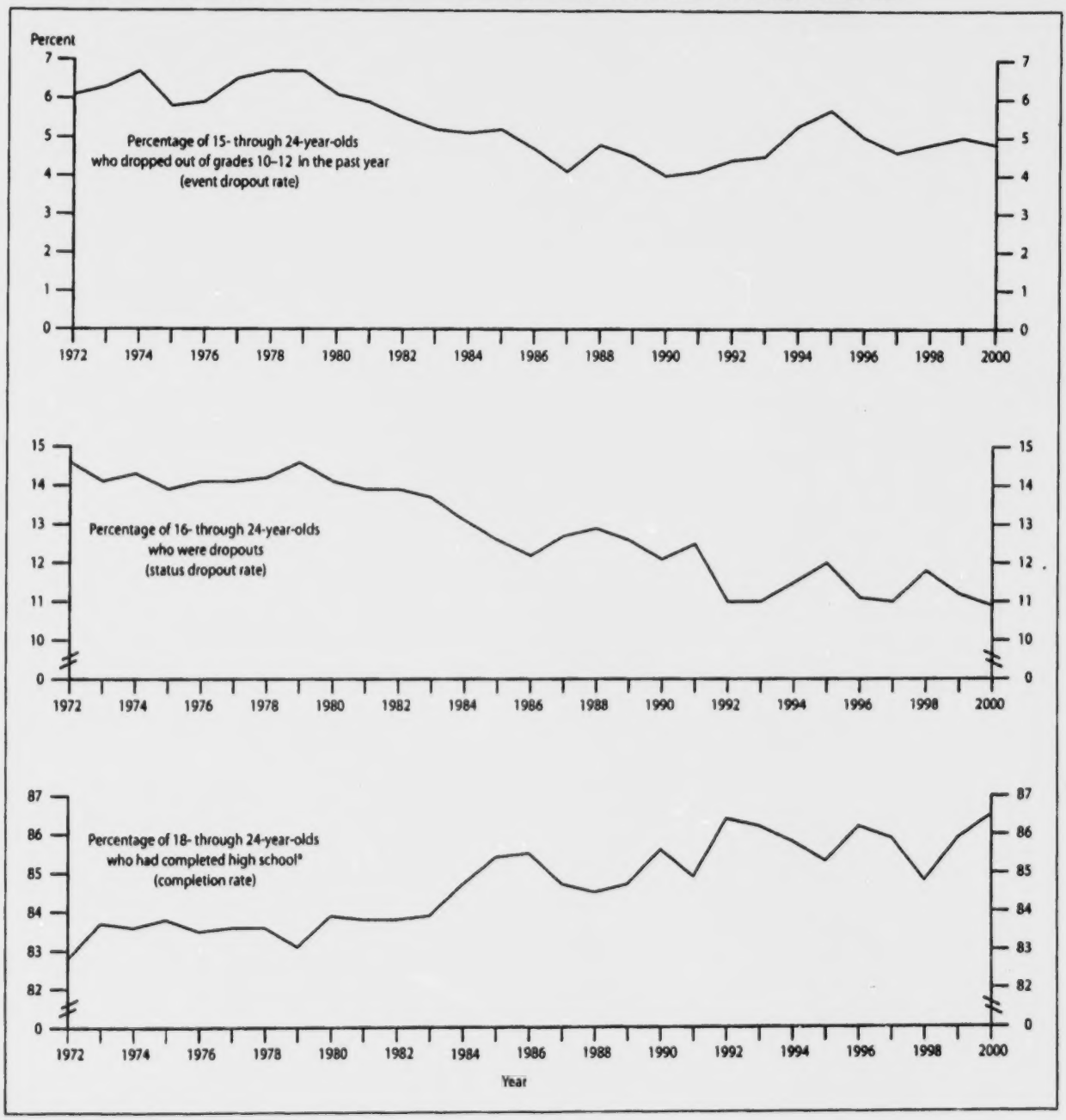
[2]Low income is defined as the bottom 20 percent of all family incomes for 2000; middle income is between 20 and 80 percent of all family incomes; and high income is the top 20 percent of all family incomes.

[3]Age when a person dropped out may be 1 year younger, because the dropout event could occur at any time over a 12-month period.

NOTE: Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, Current Population Survey (CPS), October 2000. (Originally published as table 1 on p. 4 of the complete report from which this article is excerpted.)

Figure A.—Percentage of 15- through 24-year-olds who dropped out of grades 10–12 in the past year, percentage of 16- through 24-year-olds who were dropouts, and percentage of 18- through 24-year-olds who had completed high school: October 1972 through October 2000


Percent
Percentage of 15- through 24-year-olds who dropped out of grades 10–12 in the past year (event dropout rate)
Percentage of 16- through 24-year-olds who were dropouts (status dropout rate)
Percentage of 18- through 24-year-olds who had completed high school* (completion rate)
Year

*Excludes those still enrolled in high school.

NOTE: Data for years 1987 through 2000 reflect new editing procedures instituted by the U.S. Census Bureau for cases with missing data on school enrollment items. Data for years 1992 through 2000 reflect new wording of the educational attainment item in the Current Population Survey (CPS) beginning in 1992. Data for years 1994 through 2000 reflect changes in the CPS due to newly instituted computer-assisted interviewing and the change in population controls used in the 1990 census-based estimates, with adjustment for undercounting in the 1990 census.

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, Current Population Survey (CPS), October 1972–2000.

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Status Dropout Rates

Over the last decade, between 347,000 and 544,000 10th- through 12th-grade students left school each year without successfully completing a high school program. Status dropout rates represent the proportion of young people ages 16 through 24 who are out of school and who have not earned a high school credential. Status rates are higher than event rates because they include all dropouts in this age range, regardless of when they last attended school.

- In October 2000, some 3.8 million young adults were not enrolled in a high school program and had not completed high school. These youths accounted for 10.9 percent of the 34.6 million 16- through 24-year-olds in the United States in 2000 (tables A and C). As noted with event rates, status rates declined from the early 1970s into the late 1980s, but since then have remained stable (figure A).
- The status dropout rate for Whites in 2000 remained lower than the rate for Blacks, but over the past 3 decades, the difference between the rates for Whites and Blacks has narrowed. However, this narrowing of the gap occurred during the 1970s and 1980s. Since 1990, the gap has remained fairly constant.
- In 2000, Hispanic young adults in the United States continued to have a relatively high status dropout rate when compared to Asian/Pacific Islanders, Whites, or Blacks.
- In 2000, the status dropout rate for Asian/Pacific Islander young adults was lower than for young adults from all other racial/ethnic groups. The status rate for Asian/Pacific Islanders was 3.8 percent compared with 27.8 percent for Hispanics, 13.1 percent for Blacks, and 6.9 percent for Whites.
- In 2000, 44.2 percent of Hispanic young adults born outside of the United States were high school dropouts. Hispanic young adults born within the United States were much less likely to be dropouts. However, when looking at just those young adults born within the United States, Hispanics were still more likely to be dropouts than were other young adults.

High School Completion Rates

High school completion rates represent the proportion of 18- through 24-year-olds, not currently enrolled in high school or below, who have completed a high school diploma or an equivalent credential, including a General Educational Development (GED) credential.

- In 2000, 86.5 percent of all 18- through 24-year-olds not enrolled in high school had completed high school (tables A and D). Completion rates rose slightly from the early 1970s to the late 1980s, but have remained fairly constant during the 1990s (figure A).
- High school completion rates increased for White and Black young adults between the early 1970s and late 1980s, but have remained relatively constant in the 1990s. By 2000, 91.8 percent of White and 83.7 percent of Black 18- through 24-year-olds had completed high school.
- White and Asian/Pacific Islander young adults in 2000 were more likely than their Black and Hispanic peers to have completed high school.

Table C.—Status dropout rates and number and distribution of 16- through 24-year-olds who were dropouts, by background characteristics: October 2000

Characteristic	Status dropout rate (percent)	Number of status dropouts (thousands)	Population (thousands)	Percent of all status dropouts	Percent of population
Total	10.9	3,776	34,568	100.0	100.0
Sex					
Male	12.0	2,082	17,402	55.1	50.3
Female	9.9	1,694	17,166	44.9	49.7
Race/ethnicity[1]					
White, non-Hispanic	6.9	1,564	22,574	41.4	65.3
Black, non-Hispanic	13.1	663	5,058	17.6	14.6
Hispanic	27.8	1,456	5,237	38.6	15.1
Asian/Pacific Islander	3.8	54	1,417	1.4	4.1
Age					
16	3.9	153	3,887	4.1	11.2
17	7.6	307	4,023	8.1	11.6
18	11.6	468	4,019	12.4	11.6
19	13.5	544	4,026	14.4	11.6
20–24	12.4	2,304	18,613	61.0	53.8
Recency of immigration					
Born outside the 50 states and the District of Columbia					
Hispanic	44.2	1,007	2,282	26.7	6.6
Non-Hispanic	7.4	140	1,907	3.7	5.5
First generation[2]					
Hispanic	14.6	244	1,669	6.5	4.8
Non-Hispanic	4.6	84	1,837	2.2	5.3
Second generation or more[3]					
Hispanic	15.9	205	1,286	5.4	3.7
Non-Hispanic	8.2	2,096	25,586	55.5	74.0
Region					
Northeast	8.5	504	5,945	13.3	17.2
Midwest	9.2	741	8,058	19.6	23.3
South	12.9	1,597	12,337	42.3	35.7
West	11.3	933	8,228	24.7	23.8

[1]Due to small sample sizes, American Indians/Alaska Natives are included in the total but are not shown separately.

[2]Individuals defined as "first generation" were born in the 50 states or the District of Columbia, and one or both of their parents were born outside the 50 states and the District of Columbia.

[3]Individuals defined as "second generation or more" were born in the 50 states or the District of Columbia, as were both of their parents.

NOTE: Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, Current Population Survey (CPS), October 2000. (Originally published as table 3 on p. 13 of the complete report from which this article is excerpted.)

Table D.—High school completion rates and number and distribution of 18- through 24-year-old completers not currently enrolled in high school or below, by background characteristics: October 2000

Characteristic	Completion rate (percent)	Number of completers (thousands)	Population (thousands)	Percent of all completers
Total	86.5	21,743	25,138	100.0
Sex				
Male	84.9	10,580	12,460	48.7
Female	88.1	11,164	12,678	51.3
Race/ethnicity*				
White, non-Hispanic	91.8	15,145	16,502	69.7
Black, non-Hispanic	83.7	2,999	3,582	13.8
Hispanic	64.1	2,433	3,797	11.2
Asian/Pacific Islander	94.6	1,016	1,074	4.7
Age				
18–19	84.0	5,645	6,718	26.0
20–21	86.4	6,359	7,363	29.2
22–24	88.1	9,739	11,057	44.8
Region				
Northeast	89.1	3,799	4,265	17.5
Midwest	88.9	5,209	5,861	24.0
South	84.4	7,506	8,895	34.5
West	85.5	5,230	6,117	24.1

*Due to small sample sizes, American Indians/Alaska Natives are included in the total but are not shown separately.

NOTE: Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, Current Population Survey (CPS), October 2000. (Originally published as table 4 on p. 20 of the complete report from which this article is excerpted.)

Data sources:

NCES: The Common Core of Data (CCD), "Local Education Agency Universe Survey," 1991–92 through 1999–2000; the National Education Longitudinal Study of 1988 Eighth-Graders (NELS:88/94); and the High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/82).

Other: U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), October 1972–2000; and American Council on Education, GED Testing Service, *GED Statistical Report* (1990–99).

For technical information, see the complete report:

Kaufman, P., Alt, M.N., and Chapman, C.D. (2001). *Dropout Rates in the United States: 2000* (NCES 2002–114).

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To obtain the complete report (NCES 2002–114), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov),* or contact GPO (202–512–1800).

Indicators of School Crime and Safety: 2001

Phillip Kaufman, Xianglei Chen, Susan P. Choy, Katharin Peter, Sally A. Ruddy, Amanda K. Miller, Jill K. Fleury, Kathryn A. Chandler, Michael G. Planty, and Michael R. Rand

This article was originally published as the Executive Summary of the report of the same name. The report is a joint effort of the Bureau of Justice Statistics (BJS) and the National Center for Education Statistics (NCES). The numerous data sources are listed at the end of this article.

Overview

Schools should be safe and secure places for all students, teachers, and staff members. Without a safe learning environment, teachers cannot teach and students cannot learn. Student safety is of concern outside of school as well. In fact, as the data in this report show, more serious victimizations happen away from school than at school.[1] In 1999, students were more than two times as likely to be victims of serious violent crime away from school as at school.[2]

In 1999, students ages 12 through 18 were victims of about 2.5 million total crimes at school. In that same year, these students were victims of about 186,000 serious violent crimes at school (i.e., rape, sexual assault, robbery, and aggravated assault). There were also 47 school-associated violent deaths in the United States between July 1, 1998, and June 30, 1999—including 38 homicides, 33 of which involved school-age children.

The total nonfatal victimization rate for young people generally declined between 1992 and 1999. The percentage of students being victimized at school also declined over the last few years. Between 1995 and 1999, the percentage of students ages 12 through 18 who reported being victims of crime at school decreased from 10 percent to 8 percent. This decline was due in large part to the decrease in percentages of students in grades 7 through 9 who reported being victimized. Between 1995 and 1999, the prevalence of reported victimization dropped from 11 percent to 8 percent for 7th-graders, from 11 percent to 8 percent for 8th-graders, and from 12 percent to 9 percent for 9th-graders.

However, the prevalence rates of some types of crimes at school have not changed. For example, between 1993 and 1999, the percentage of students in grades 9 through 12 who were threatened or injured with a weapon on school property in the past 12 months remained constant—at about 7 to 8 percent.

As the rate of victimization in schools has declined or remained constant, students also seem to feel more secure at school now than just a few years ago. The percentage of students ages 12 through 18 who reported avoiding one or more places at school for their own safety decreased between 1995 and 1999—from 9 to 5 percent. Furthermore, the percentage of students who reported that street gangs were present at their schools decreased from 1995 to 1999. In 1999, 17 percent of students ages 12 through 18 reported that they had street gangs at their schools, compared with 29 percent in 1995.

There was an increase in the use of marijuana among students in grades 9 through 12 between 1993 and 1995, but percentages of students in these grades reporting marijuana use were similar in 1995, 1997, and 1999. In 1999, about 27 percent of these students had used marijuana in the last 30 days. Furthermore, in 1995, 1997, and 1999, about one-third of these students (between 30 and 32 percent) reported that someone had offered, sold, or given them an illegal drug on school property—an increase from 24 percent in 1993.

Therefore, the data shown in this report present a mixed picture of school safety. While overall school crime rates have declined, violence, gangs, and drugs are still present, indicating that more work needs to be done.

Report Organization

This report, the fourth in a series of annual reports on school crime and safety from the Bureau of Justice Statistics (BJS) and the National Center for Education Statistics (NCES), presents the latest available data on school crime and student safety. The report repeats many indicators from the 2000 report but also provides updated data on fatal and nonfatal student victimization, nonfatal teacher victimization, students being threatened or injured with a weapon at school, fights at school, students carrying weapons to school, students' use of alcohol and marijuana, and student reports of drug availability on school property.

The report is organized as a series of indicators, with each indicator presenting data on a different aspect of school

[1] These data do not take into account the number of hours that students spend on school property and the number of hours they spend elsewhere.

[2] In comparisons between victimization at and away from school, "students" refers to persons 12 through 18 years of age who have attended any grade equal to or less than high school. An uncertain percentage of these persons may not have attended school during the survey reference period.

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crime and safety. It starts with the most serious violence. There are five sections to the report: Violent Deaths at School; Nonfatal Student Victimization—Student Reports; Violence and Crime at School—Public School Principal/ Disciplinarian Reports; Nonfatal Teacher Victimization at School—Teacher Reports; and School Environment. Each section contains a set of indicators that, taken together, describe a distinct aspect of school crime and safety.

Rather than relying on data from a large omnibus survey of school crime and safety, this report uses a variety of independent data sources from federal departments and agencies including BJS, NCES, and the Centers for Disease Control and Prevention. Each data source has an independent sample design, data collection method, and questionnaire design, all of which may be influenced by the unique perspective of the primary funding agency. By combining multiple and independent sources of data, it is hoped that this report will present a more complete portrait of school crime and safety than would be possible with any single source of information.

However, because the report relies on so many different data sets, the age groups, the time periods, and the types of respondents analyzed can vary from indicator to indicator. Readers should keep this in mind as they compare data from different indicators. Furthermore, while every effort has been made to keep key definitions consistent across indicators, different surveys sometimes use different definitions, such as those for specific crimes and "at school." Therefore, caution should be used in making comparisons between results from different data sets.

Key Findings

Some of the key findings from the various sections of this report are as follows:

Violent Deaths at School

From July 1, 1998, through June 30, 1999, there were 47 school-associated violent deaths in the United States. Thirty-eight of these violent deaths were homicides, six were suicides, two involved suspects killed by a law enforcement officer in the line of duty, and one was unintentional. Thirty-three of the 38 school-associated homicides were of school-age children. By comparison, a total of 2,407 children ages 5 through 19 were victims of homicide in the United States from July 1, 1998, through June 30, 1999. Four of the six school-associated suicides occurring from July 1, 1998, through June 30, 1999, were of school-age children. A total of 1,854 children ages 5 through 19 committed suicide that year.

Nonfatal Student Victimization—Student Reports

Students ages 12 through 18 were more likely to be victims of nonfatal serious violent crime—including rape, sexual assault, robbery, and aggravated assault—away from school than when they were at school. In 1999, students in this age range were victims of about 476,000 serious violent crimes away from school, compared with about 186,000 at school.

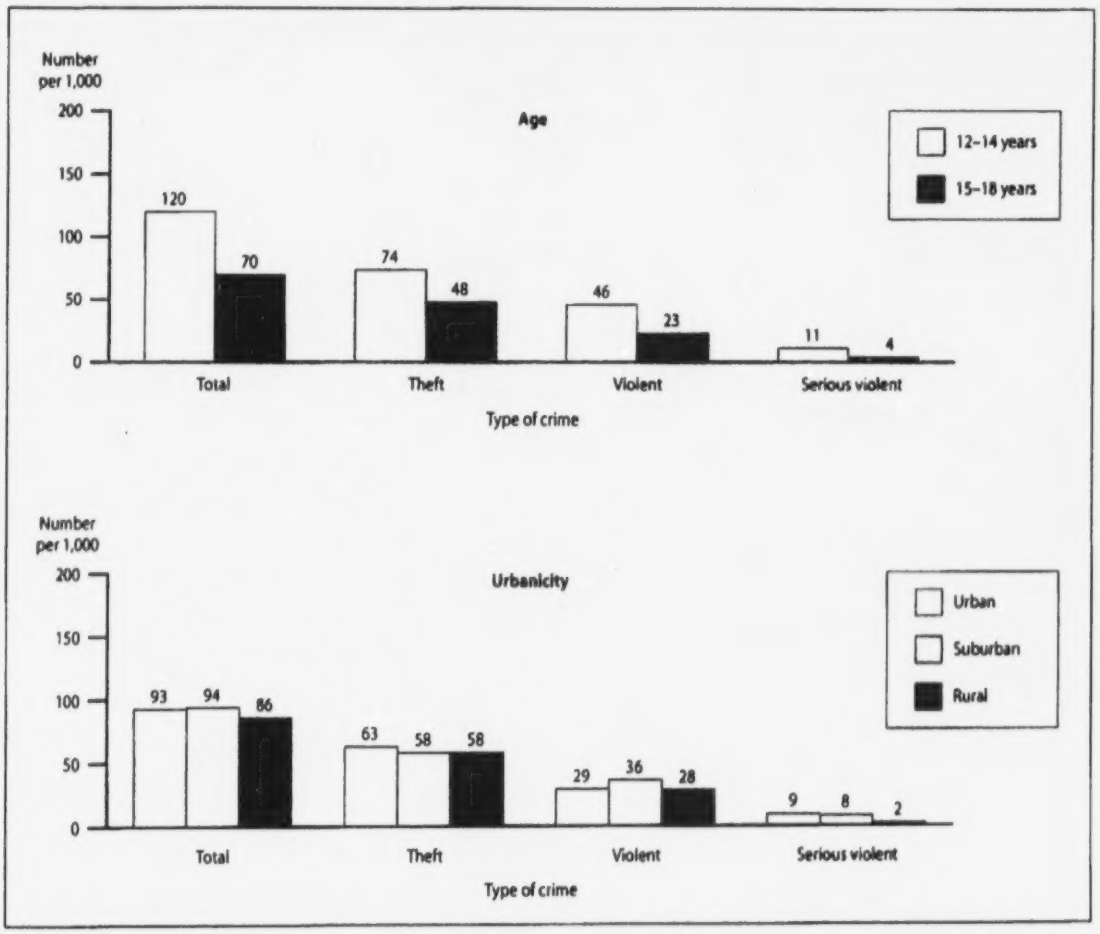
- The percentage of students in grades 9 through 12 who have been threatened or injured with a weapon on school property[1] has not changed significantly in recent years. In 1993, 1995, 1997, and 1999, about 7 to 8 percent of students in these grades reported being threatened or injured with a weapon such as a gun, knife, or club on school property in the past 12 months.
- In 1999, 12- through 18-year-old students living in urban and suburban locales were equally vulnerable to serious violent crime at school (figure A). Away from school, however, urban students were more vulnerable to serious violent crime than were suburban students, and suburban students were more likely to experience serious violent victimization than were rural students (figure B). Yet, student vulnerability to theft at school and away from school in 1999 was similar in urban, suburban, and rural areas.
- In 1999, younger students (ages 12 through 14) were more likely than older students (ages 15 through 18) to be victims of crime at school (figure A). However, older students were more likely than younger students to be victimized away from school (figure B).

Violence and Crime at School—Public School Principal/ Disciplinarian Reports

In 1996–97, 10 percent of all public schools reported at least one serious violent crime to the police or a law enforcement representative. Principals' reports of serious violent crimes included murder, rape or other type of sexual battery, suicide, physical attack or fight with a weapon, or robbery. Another 47 percent of public schools reported at least one less serious violent or nonviolent crime (but not a serious violent one). Crimes in this category include physical attack or fight without a weapon, theft/larceny, and vandalism. The remaining 43 percent of public schools did not report any of these crimes to the police.

[1]Definitions for "on school property" and "at school" may differ.

Figure A.—Number of nonfatal crimes against students ages 12 through 18 occurring at school or going to or from school per 1,000 students, by type of crime and selected student characteristics: 1999



NOTE: Serious violent crimes include rape, sexual assault, robbery, and aggravated assault. Violent crimes include serious violent crimes and simple assault. Total crimes include violent crimes and theft. "At school" includes inside the school building, on school property, or on the way to or from school. Detail may not add to totals because of rounding.

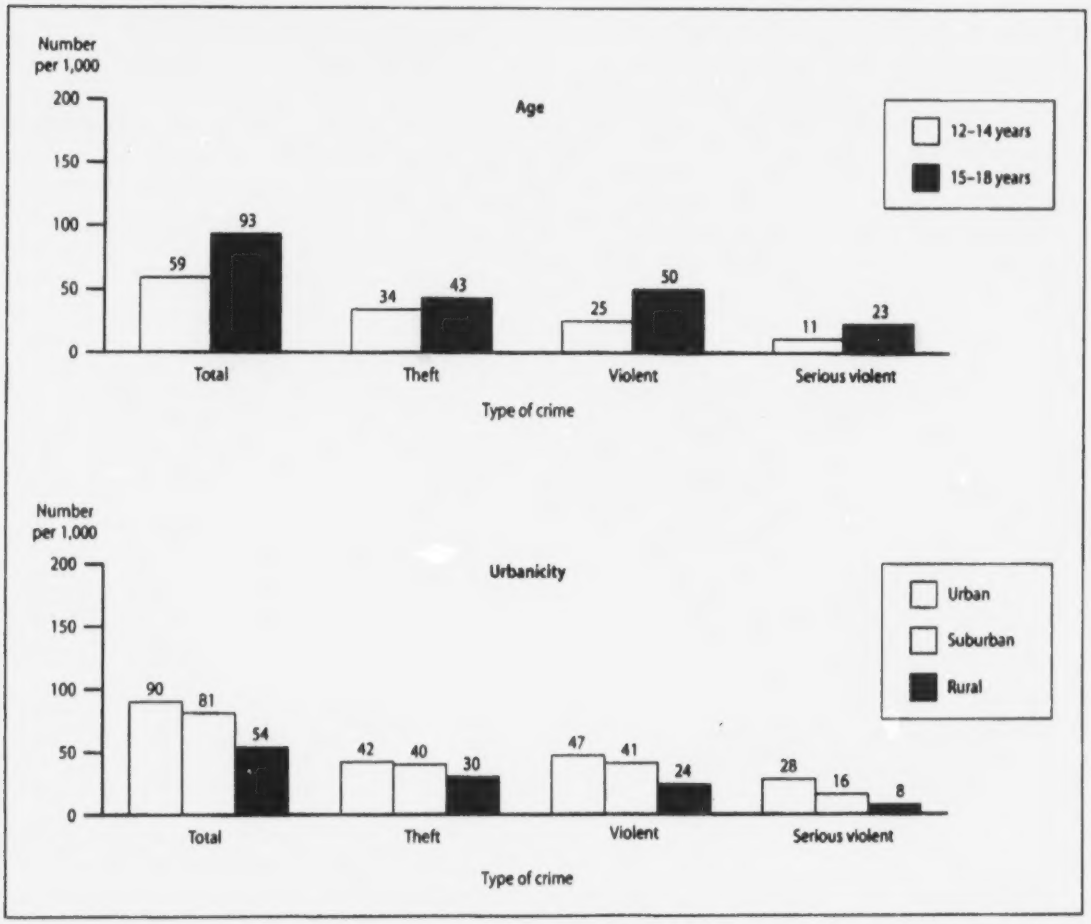
SOURCE: U.S. Department of Justice, Bureau of Justice Statistics, National Crime Victimization Survey, 1999. (Taken from figure 2.2 on p. 6 of the complete report from which this article is excerpted.)

- Elementary schools were much less likely than either middle or high schools to report any type of crime in 1996–97. Elementary schools were much more likely to report vandalism (31 percent) than any other crime (19 percent or less).
- At the middle and high school levels, physical attack or fight without a weapon was generally the most commonly reported crime in 1996–97 (9 incidents per 1,000 middle school students and 8 incidents per 1,000 high school students). Theft or larceny was more common at the high school than at the middle school level (6 vs. 4 incidents per 1,000 students).

Nonfatal Teacher Victimization at School—Teacher Reports

Over the 5-year period from 1995 through 1999, teachers were victims of approximately 1,708,000 nonfatal crimes at school, including 1,073,000 thefts and 635,000 violent crimes (rape or sexual assault, robbery, and aggravated and simple assault). On average, this translates into 79 crimes per 1,000 teachers per year.

Figure B.—Number of nonfatal crimes against students ages 12 through 18 occurring away from school per 1,000 students, by type of crime and selected student characteristics: 1999

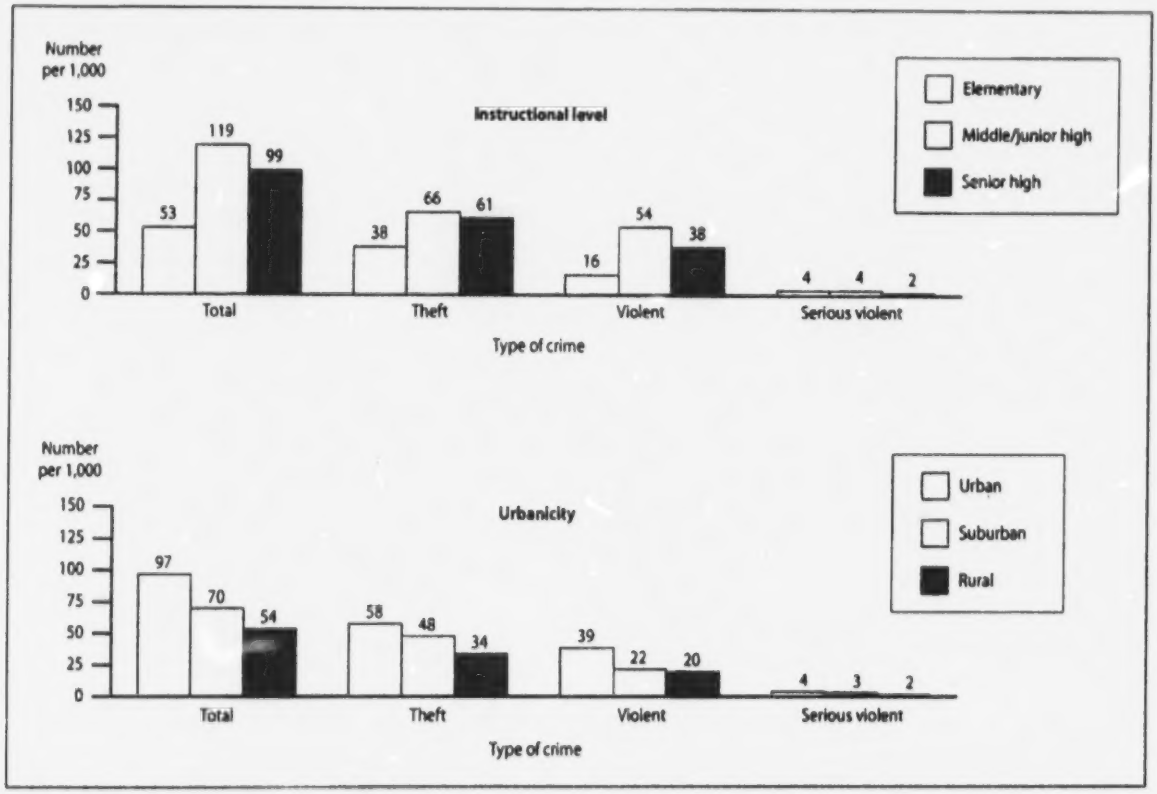


NOTE: Serious violent crimes include rape, sexual assault, robbery, and aggravated assault. Violent crimes include serious violent crimes and simple assault. Total crimes include violent crimes and theft. Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Justice, Bureau of Justice Statistics, National Crime Victimization Survey, 1999. (Taken from figure 2.3 on p. 7 of the complete report from which this article is excerpted.)

- During the 1995 through 1999 period, senior high school and middle/junior high school teachers were more likely than elementary school teachers to be victims of violent crimes (most of which were simple assaults) (38 and 54 crimes per 1,000 senior and middle/junior high school teachers, respectively, vs. 16 crimes per 1,000 elementary school teachers) (figure C).
- Teachers were differentially victimized by violent crimes at school according to where they taught. Over the 5-year period from 1995 through 1999, urban teachers were more likely to be victims of violent crimes than suburban and rural teachers (39 crimes per 1,000 urban teachers vs. 22 and 20 crimes per 1,000 suburban and rural teachers, respectively) (figure C).
- In the 1993–94 school year, 12 percent of all elementary and secondary school teachers were threatened with injury by a student and 4 percent were physically attacked by a student. This represented about 341,000 teachers who were victims of threats of injury by students that year and 119,000 teachers who were victims of attacks by students.

Figure C.—Average annual number of nonfatal crimes against teachers at school per 1,000 teachers, by type of crime and selected characteristics: Aggregated from 1995 to 1999



NOTE: Serious violent crimes include rape, sexual assault, robbery, and aggravated assault. Violent crimes include serious violent crimes and simple assault. Total crimes include violent crimes and theft. The data were aggregated from 1995 to 1999 due to the small number of teachers in each year's sample. Detail may not add to totals because of rounding. "At school" includes inside the school building, on school property, at work site, or while working. For thefts, "while working" was not considered since theft of teachers' property kept at school can occur when teachers are not present.

SOURCE: U.S. Department of Justice, Bureau of Justice Statistics, National Crime Victimization Survey, 1995 to 1999. (Taken from figure 9.1 on p. 23 of the complete report from which this article is excerpted.)

School Environment

Between 1995 and 1999, the percentages of students who felt unsafe while they were at school and while they were going to and from school decreased. In 1995, 9 percent of students ages 12 through 18 sometimes or most of the time feared they were going to be attacked or harmed at school. In 1999, this percentage had fallen to 5 percent. During the same period, the percentage of students ages 12 through 18 fearing they would be attacked while traveling to and from school fell from 7 percent to 4 percent.

- Between 1993 and 1999, the percentage of students in grades 9 through 12 who reported carrying a weapon on school property within the previous 30 days fell from 12 percent to 7 percent (about a 42 percent reduction).
- Between 1995 and 1999, the percentage of students ages 12 through 18 who avoided one or more places at school out of fear for their own safety decreased, from 9 to 5 percent.
- In 1999, about 13 percent of students ages 12 through 18 reported that someone at school had used hate-related words against them. That is, in the prior 6 months someone at school called them a derogatory word having to do with race/ethnicity, religion, disability, gender, or sexual orientation. In addition, about 36 percent of students saw hate-related graffiti at school.
- Between 1995 and 1999, the percentage of students who reported that street gangs were present at their schools decreased. In 1995, 29 percent of students

ages 12 through 18 reported gangs being present at their schools. By 1999, this percentage had fallen to 17 percent.

- In 1999, about 5 percent of students in grades 9 through 12 had at least one drink of alcohol on school property in the previous 30 days. Half of students in these grades (about 50 percent) had at least one drink anywhere during the same period.
- There was an increase in the use of marijuana among students in grades 9 through 12 anywhere and on school property between 1993 and 1995, but no change between 1995, 1997, and 1999. About one-quarter (27 percent) of students in these grades reported using marijuana anywhere in the last 30 days in 1999, and 7 percent reported using marijuana on school property.
- In 1995, 1997, and 1999, about one-third of all students in grades 9 through 12 (between 30 and 32 percent) reported that someone had offered, sold, or given them an illegal drug on school property. This was an increase from 1993, when 24 percent of such students reported that illegal drugs were available to them on school property.

Data sources:

NCES: Schools and Staffing Survey (SASS), 1993–94, "Public School Teacher Questionnaire," "Private School Teacher Questionnaire," "Public School Questionnaire," and "Private School Questionnaire"; Fast Response Survey System, "Principal/School Disciplinarian Survey on School Violence," FRSS 63, 1997.

Bureau of Justice Statistics (BJS): National Crime Victimization Survey (NCVS), 1992–99 (annual).

Joint NCES and BJS: School Crime Supplement (SCS) to the National Crime Victimization Survey, 1989, 1995, and 1999.

Centers for Disease Control and Prevention (CDC): The National School-Based Youth Risk Behavior Survey (YRBS), 1993, 1995, 1997, and 1999; School-Associated Violent Death Study (SAVD), 1998–99; and Vital Statistics of the United States, 1998 and 1999.

Other: The FBI's 1998 and 1999 *Supplementary Homicide Reports* and the following article:

Kachur, S.P., et al. (1996). School-Associated Violent Deaths in the United States, 1992 to 1994. *Journal of the American Medical Association 275* (22): 1729–1733.

For technical information, see the complete report:

Kaufman, P., Chen, X., Choy, S.P., Peter, K., Ruddy, S.A., Miller, A.K., Fleury, J.K., Chandler, K.A., Planty, M.G., and Rand, M.R. (2001). *Indicators of School Crime and Safety: 2001* (NCES 2002–113 or NCJ-190075).

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Characteristics of the 100 Largest Public Elementary and Secondary School Districts in the United States: 1999–2000

Beth Aronstamm Young

This article was originally published as the Discussion in the Statistical Analysis Report of the same name. The universe data are from the NCES Common Core of Data (CCD).

Introduction

This publication provides basic descriptive information about the 100 largest school districts (ranked by student membership) in the United States, Bureau of Indian Affairs, Department of Defense schools, and outlying areas (American Samoa, Guam, the Northern Marianas, Puerto Rico, and the Virgin Islands). For the sake of simplicity, when discussing characteristics, the term "nation" (or "United States") is used to refer to all 50 states, the District of Columbia, Bureau of Indian Affairs, Department of Defense schools, and outlying areas. This is different from most National Center for Education Statistics (NCES) reports, which only include the 50 states and the District of Columbia in U.S. totals.

Almost one in every four public school students in this nation is served by one of these 100 districts (table A). They are distinguished from smaller districts by characteristics in addition to sheer size, such as average and median school size, pupil/teacher ratios, number of high school graduates, number of pupils receiving special education services, and minority enrollment as a proportion of total enrollment.

The tables in this publication provide information about the characteristics cited above. To establish a context for the information on the 100 largest districts, national school district data are also included, as are basic data on the 500 largest school districts.

Overview of the 100 Largest Districts

In the 1999–2000 school year, there were 16,850 public school districts, 94,090 schools, and 47.7 million students in public education in the United States. There were just under 3.0 million full-time-equivalent teachers in the 1999–2000 school year and more than 2.5 million high school completers in the 1998–99 school year. The 100 largest school districts make up less than 1 percent of all public school districts but serve 23 percent of the total number of public elementary and secondary school students (table A). The 100 largest school districts represent 17 percent of schools and employ 21 percent of all teachers. The 500 largest districts make up 3 percent of all school districts, represent 32 percent of schools, and serve 20.4 million students, or 43 percent of the total public elementary and secondary school student population in the United States (table A).

All of the 100 largest school districts have at least 45,000 students, and 26 of these school districts have over 100,000 students. The largest school district is the New York City Public Schools, with 1,075,710 students enrolled in 1,207 schools. As a comparison, the New York City Public Schools district has more students than the 6th- through 10th-largest school districts added together. The second largest school district is Los Angeles Unified, with 710,007 students in 655 schools (table B). The enrollment in each of these two largest school districts is greater than the enrollment in each of 27 individual states.[1]

Ninety-eight of the 100 largest districts reported staff by type for the 1999–2000 school year. At the national level, 52 percent of staff were teachers[1] compared to 53 percent among the 100 largest districts. Twenty of the 98 districts that reported staff by type had 1 percent or more of their staff assigned to district administration.

Where Are the 100 Largest School Districts?

The District of Columbia, Hawaii, and Puerto Rico each have only one school district for the entire jurisdiction, and each is represented among the 100 largest school districts (table B). There are 33 states and jurisdictions that have at least one of the 100 largest school districts. Two states, Florida and Texas, each have 14 districts among the 100 largest; California has 11. Several other states have more than one district represented in the 100 largest: Georgia has 6; Maryland has 5; Louisiana, North Carolina, Tennessee, Utah, and Virginia each have 4; Ohio has 3; and Arizona, Colorado, Minnesota, Nevada, and New York each have 2. The following states each have one school district among the 100 largest: Alabama, Alaska, Illinois, Kansas, Kentucky, Massachusetts, Michigan, Missouri, New Mexico, Oregon, Pennsylvania, South Carolina, Washington, and Wisconsin.

[1] State enrollment and staff data can be found in *Public School Student, Staff, and Graduate Counts by State: School Year 1999–2000* (Bairu 2001). The national staff ratio does not include Bureau of Indian Affairs schools.

Table A.—Selected statistics for the nation, the 100 largest, and the 500 largest school districts: School year 1999–2000

Data item	National total[1]	100 largest districts[1]		500 largest districts[1]	
		Total	Percentage of national total	Total	Percentage of national total
Districts	16,850	100	0.6	500	3.0
Schools	94,090	15,563	16.5	29,879	31.8
Students	47,706,027	10,962,476	23.0	20,418,441	42.8
Teachers	2,959,944	627,436	21.2	1,180,737	39.9
High school completers (1998–99)[2]	2,561,357	490,045	19.1	972,835	38.0
Pupil/teacher ratio	16.1	17.5	—	17.3	—
Average school size	507.0	704.4	—	683.4	—
High school completers as percentage of all students	5.4	4.5	—	4.8	—

— Not applicable.

[1]Includes outlying areas, Bureau of Indian Affairs, and Department of Defense schools. The 500 largest school districts include 22 school districts that are some other configuration besides PK– or K–12, although all of the 100 largest school districts are PK– or K–12.

[2]Includes high school diploma recipients as well as other high school completers (i.e., certificate recipients).

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Local Education Agency Universe Survey," 1999–2000, and "State Nonfiscal Survey of Public Elementary/Secondary Education," 1999–2000.

As expected, these 100 largest districts tend to be in cities and counties with large populations, with administrative offices typically located in large cities and their environs. Many of the districts are in states where the school districts have the same boundaries as counties. Over 70 percent of the 100 largest districts are located in coastal and gulf coast states.

How Do These Districts Compare With the Average School District?

General characteristics

By definition, the 100 largest school districts are large, and when compared to the membership distribution of all school districts, they are considerably larger than most. In the 1999–2000 school year, 71 percent of all regular school districts[3] had fewer than 2,500 students while all of the 100 largest school districts had at least 45,000 students (tables B and C). Although 14 percent of regular school districts had 5,000 or more students, 68 percent of students (or 2 out of 3) were served by these districts (table C).

The average school district in the United States has 5.6 schools compared to the 100 largest school districts, which average 155.6 schools per district (derived from table A). Two of the largest school districts, New York City Public Schools and the Puerto Rico Department of Education, each have over 1,200 schools (table B). The 100 largest school districts, on average, serve considerably more students (109,625 compared to 2,831) and employ more teachers (6,274 compared to 176) per district than the average school district in the nation (derived from table A).

School characteristics

The 100 largest school districts have more students per school than the average school district, 704 compared to 507 (table A). In fact, 11 of the 100 largest school districts have an average regular school[3] size of over 1,000 students. In addition to larger school sizes, the 100 largest school districts also have a higher mean pupil/teacher ratio, 17.5 to 1 compared to 16.1 to 1 for the average school district (table A). Across the 100 largest districts, Jefferson County, Kentucky, has the highest median[4] pupil/teacher ratio at 23.2 to 1, and St. Paul, Minnesota, has the lowest at 11.9 to 1.

The number of high school completers (diploma recipients and other high school completers) as a percentage of all

[3]A regular school district is an agency responsible for providing free public education for school-age children residing within its jurisdiction. This category excludes local supervisory unions that provide management services for a group of associated school districts; regional education service agencies that typically provide school districts with research, testing, and data processing services; state and federally operated school districts; and other agencies that do not fall into these groupings.

[3]A regular school is a public elementary/secondary school that does not focus primarily on vocational, special, or alternative education.

[4]If all the pupil/teacher ratios were listed in order, the midpoint on the list would be the median.

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Table B.—Selected statistics for the 100 largest school districts in the United States:[1] School year 1999–2000

Name of reporting district	City	State	County	Number of students[2]	Number of full-time-equivalent (FTE) teachers	Number of 1998–99 completers[3]	Number of schools
Total				10,962,476	[4]627,436	[5]490,045	15,563
New York City Public Schools	New York	NY	Kings	1,075,710	63,989	40,690	1,207
Los Angeles Unified	Los Angeles	CA	Los Angeles	710,007	33,754	26,968	655
Puerto Rico Dept of Education	Hato Rey	PR	San Juan	613,019	41,349	30,479	1,531
City of Chicago School District	Chicago	IL	Cook	431,750	23,455	16,195	597
Dade County School District	Miami	FL	Dade	360,136	18,104	14,951	350
Broward County School District	Fort Lauderdale	FL	Broward	241,094	11,322	9,948	234
Clark County School District	Las Vegas	NV	Clark	217,526	10,838	9,022	246
Houston Independent School District	Houston	TX	Harris	209,716	11,638	7,299	293
Philadelphia City School District	Philadelphia	PA	Philadelphia	205,199	11,423	9,789	259
Hawaii Department of Education	Honolulu	HI	Honolulu	185,860	10,866	10,418	256
Detroit City School District	Detroit	MI	Wayne	167,124	9,148	6,222	268
Dallas Independent School District	Dallas	TX	Dallas	160,477	9,957	5,509	218
Hillsborough County School District	Tampa	FL	Hillsborough	159,517	9,610	6,863	203
Fairfax County Public Schools	Fairfax	VA	Fairfax	152,952	10,491	9,714	197
Palm Beach County School District	West Palm Beach	FL	Palm Beach	149,665	8,138	6,707	175
Orange County School District	Orlando	FL	Orange	144,231	8,273	6,001	173
San Diego City Unified	San Diego	CA	San Diego	140,743	7,341	6,301	177
Prince George's County Public Schools	Upper Marlboro	MD	Prince George's	131,059	7,566	7,402	189
Montgomery County Public Schools	Rockville	MD	Montgomery	130,720	8,198	7,484	192
Duval County School District	Jacksonville	FL	Duval	126,362	6,423	4,709	177
Memphis City School District	Memphis	TN	Shelby	112,819	6,721	4,276	164
Pinellas County School District	Largo	FL	Pinellas	111,793	6,328	5,053	162
Baltimore County Public Schools	Towson	MD	Baltimore	106,465	6,642	6,378	168
Gwinnett County School District	Lawrenceville	GA	Gwinnett	104,552	6,664	5,030	84
Baltimore City Public School System	Baltimore	MD	Baltimore	103,000	5,921	3,937	184
Charlotte-Mecklenburg Schools	Charlotte	NC	Mecklenburg	100,553	6,418	4,732	135
Milwaukee School District	Milwaukee	WI	Milwaukee	99,729	5,992	3,398	202
Jefferson (KY) County	Louisville	KY	Jefferson	97,053	5,360	5,229	175
De Kalb County School District	Decatur	GA	De Kalb	95,283	5,885	4,427	120
Wake County Schools	Raleigh	NC	Wake	95,248	6,002	4,480	113
Cobb County School District	Marietta	GA	Cobb	93,657	5,815	5,022	93
Long Beach Unified	Long Beach	CA	Los Angeles	91,465	4,079	3,953	86
Jefferson (CO) County	Golden	CO	Jefferson	88,579	4,323	5,101	158
Albuquerque Public Schools	Albuquerque	NM	Bernalillo	85,381	5,236	4,696	126
Orleans Parish School Board	New Orleans	LA	Orleans	80,526	5,023	3,765	124
Fresno Unified	Fresno	CA	Fresno	78,766	3,847	3,302	95
Polk County School District	Bartow	FL	Polk	78,685	4,575	3,515	131
Fort Worth Independent School District	Fort Worth	TX	Tarrant	78,654	4,596	3,295	135
Austin Independent School District	Austin	TX	Travis	77,723	5,100	3,398	105
Virginia Beach City Public Schools	Virginia Beach	VA	Virginia Beach City	77,363	5,014	4,295	84
Cleveland City School District	Cleveland	OH	Cuyahoga	76,559	5,273	2,050	124
Anne Arundel County Public Schools	Annapolis	MD	Anne Arundel	74,663	4,225	4,128	118
Jordan School District	Sandy	UT	Salt Lake	73,111	3,164	5,207	81
Granite School District	Salt Lake City	UT	Salt Lake	72,170	3,231	4,480	96
Mesa Unified School District	Mesa	AZ	Maricopa	71,894	3,556	3,892	86
District of Columbia Pub Schools	Washington	DC	District of Columbia	70,762	—	2,805	162
Nashville-Davidson County School District	Nashville	TN	Davidson	70,176	4,544	2,802	127
Denver County	Denver	CO	Denver	69,693	4,010	2,899	124
Brevard County School District	Melbourne	FL	Brevard	69,661	3,765	3,352	103
Fulton County School District	Atlanta	GA	Fulton	67,025	4,306	3,065	66
Columbus City School District	Columbus	OH	Franklin	65,490	3,996	2,312	146
Mobile County School District	Mobile	AL	Mobile	65,067	4,089	3,482	105
Boston School District	Boston	MA	Suffolk	62,950	5,093	2,960	130
Tucson Unified District	Tucson	AZ	Pima	62,548	3,352	—	120
Northside Independent School District	San Antonio	TX	Bexar	62,536	4,136	3,492	84

See footnotes on second page of this table.

Table B.—Selected statistics for the 100 largest school districts in the United States:[1] School year 1999–2000—Continued

Name of reporting district	City	State	County	Number of students[2]	Number of full-time-equivalent (FTE) teachers	Number of 1998–99 completers[3]	Number of schools
Guilford County Schools	Greensboro	NC	Guilford	62,486	3,929	3,066	96
El Paso Independent School District	El Paso	TX	El Paso	62,306	3,785	3,458	85
San Francisco Unified	San Francisco	CA	San Francisco	60,896	3,188	3,506	116
Volusia County School District	Deland	FL	Volusia	60,688	3,637	2,899	91
Cypress-Fairbanks ISD	Houston	TX	Harris	60,370	3,812	3,223	50
Davis School District	Farmington	UT	Davis	59,486	2,614	4,209	82
Atlanta City School District	Atlanta	GA	Fulton	59,429	3,891	2,042	99
Seminole County School District	Sanford	FL	Seminole	59,326	3,132	2,972	65
Greenville County School District	Greenville	SC	Greenville	59,176	3,712	3,100	94
Santa Ana Unified	Santa Ana	CA	Orange	58,043	2,651	2,062	50
San Antonio Independent School District	San Antonio	TX	Bexar	57,565	3,582	2,499	105
Arlington Independent School District	Arlington	TX	Tarrant	56,773	3,613	2,680	69
Lee County School District	Fort Myers	FL	Lee	56,109	3,021	2,683	75
East Baton Rouge Parish School Board	Baton Rouge	LA	East Baton Rouge	55,652	3,768	2,760	104
Oakland Unified	Oakland	CA	Alameda	55,051	2,865	1,618	93
Washoe County School District	Reno	NV	Washoe	54,508	3,222	2,539	89
Portland School District	Portland	OR	Multnomah	53,587	2,948	2,427	109
Knox County School District	Knoxville	TN	Knox	52,840	3,492	2,686	86
Fort Bend Independent School District	Sugar Land	TX	Fort Bend	52,704	3,167	2,898	51
Prince William County Public Schools	Manassas	VA	Prince William	52,551	3,004	2,919	68
Sacramento City Unified	Sacramento	CA	Sacramento	51,898	2,440	2,346	77
Jefferson Parish School Board	Harvey	LA	Jefferson	51,835	3,397	2,591	84
Cumberland County Schools	Fayetteville	NC	Cumberland	51,300	3,078	2,428	78
Aldine Independent School District	Houston	TX	Harris	50,890	3,431	1,992	63
Chesterfield County Public Schools	Chesterfield	VA	Chesterfield	50,847	3,346	3,004	59
San Bernardino City Unified	San Bernardino	CA	San Bernardino	50,340	2,314	1,860	62
Cincinnati City School District	Cincinnati	OH	Hamilton	49,574	3,135	1,278	79
Anchorage School District	Anchorage	AK	Anchorage	49,382	2,764	2,609	93
North East Independent School District	San Antonio	TX	Bexar	49,197	3,260	2,762	64
Shelby County School District	Memphis	TN	Shelby	49,078	2,366	2,540	44
Garland Independent School District	Garland	TX	Dallas	49,036	2,971	2,295	65
Minneapolis	Minneapolis	MN	Hennepin	48,688	3,626	1,959	145
San Juan Unified	Carmichael	CA	Sacramento	48,052	2,149	2,904	84
Garden Grove Unified	Garden Grove	CA	Orange	48,031	2,056	2,562	65
Seattle	Seattle	WA	King	47,989	2,492	2,908	118
Wichita	Wichita	KS	Sedgwich	47,778	3,284	2,026	94
Pasco County School District	Land O Lakes	FL	Pasco	47,691	2,745	1,997	51
Ysleta Independent School District	El Paso	TX	El Paso	46,950	3,043	2,797	60
Buffalo City School District	Buffalo	NY	Erie	46,370	3,399	1,779	76
Caddo Parish School Board	Shreveport	LA	Caddo	46,222	2,976	2,283	74
Alpine School District	American Fork	UT	Utah	45,842	2,013	2,884	56
St. Louis City	St. Louis	MO	St. Louis City	45,658	3,252	1,263	115
Escambia County School District	Pensacola	FL	Escambia	45,297	2,612	2,129	82
Clayton County School District	Jonesboro	GA	Clayton	45,266	2,801	1,750	48
St. Paul	St. Paul	MN	Ramsey	45,253	3,290	1,974	137

— Data missing.

[1]Includes outlying areas, Bureau of Indian Affairs, and Department of Defense schools.

[2]Count of students receiving educational services from school district may differ somewhat from the counts in tables 3 and 5 of the complete report, which reflect the count of students from the schools aggregated up to the school district.

[3]Includes high school diploma recipients as well as other high school completers (i.e., certificate recipients).

[4]Total is missing the District of Columbia teacher counts.

[5]Total is missing the Tucson Unified District, AZ, graduate counts.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 1999–2000, and "Local Education Agency Universe Survey," 1999–2000. (Originally published as table 1 on p. 12 of the complete report from which this article is excerpted.)

Table C.—Number and percentage of districts and students by district size for regular public elementary and secondary school districts in the nation:[1] School year 1999–2000

District size (number of students)	Districts			Students			Cumulative totals	
	Number	Percentage	Cumulative percentage	Number	Percentage	Cumulative percentage	Districts	Students
Total[2]	13,156	100.0	—	45,479,377	100.0	—	—	—
100,000 or more	26	0.2	0.2	6,352,049	14.0	14.0	26	6,352,049
25,000 to 99,999	214	1.6	1.8	9,180,557	20.2	34.2	240	15,532,606
10,000 to 24,999	573	4.4	6.2	8,580,658	18.9	53.0	813	24,113,264
7,500 to 9,999	314	2.4	8.6	2,709,758	6.0	59.0	1,127	26,823,022
5,000 to 7,499	701	5.3	13.9	4,275,921	9.4	68.4	1,828	31,098,943
2,500 to 4,999	1,977	15.0	28.9	6,947,875	15.3	83.7	3,805	38,046,818
2,000 to 2,499	745	5.7	34.6	1,668,009	3.7	87.3	4,550	39,714,827
1,500 to 1,999	957	7.3	41.9	1,660,530	3.7	91.0	5,507	41,375,357
1,000 to 1,499	1,318	10.0	51.9	1,630,681	3.6	94.6	6,825	43,006,038
800 to 999	711	5.4	57.3	639,968	1.4	96.0	7,536	43,646,006
600 to 799	888	6.7	64.0	617,732	1.4	97.3	8,424	44,263,738
450 to 599	828	6.3	70.3	431,333	0.9	98.3	9,252	44,695,071
300 to 449	1,052	8.0	78.3	390,660	0.9	99.1	10,304	45,085,731
150 to 299	1,323	10.1	88.4	291,707	0.6	99.8	11,627	45,377,438
1 to 149	1,316	10.0	98.4	101,939	0.2	100.0	12,943	45,479,377
Zero[3]	158	1.2	99.6	0	0.0	100.0	13,101	45,479,377
Not reported	55	0.4	100.0	—	—	100.0	13,156	45,479,377

—Not applicable.

[1]Includes outlying areas, Bureau of Indian Affairs, and Department of Defense schools.

[2]Not included in this table are local supervisory unions, regional education service agencies, and state and federally operated agencies. The number of regular districts represented in this table differs from the number of districts in table A, which represents all districts.

[3]Membership may be 0 in two situations: (1) where the school district does not operate schools but pays tuition for its students in a neighboring district, and (2) where the district provides services for students who are accounted for in some other district(s).

NOTE: Detail may not add to cumulative totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Local Education Agency Universe Survey," 1999–2000. (Originally published as table B on p. 3 of the complete report from which this article is excerpted.)

students is lower in the 100 largest school districts than in the average school district: 4.5 percent of students are graduates in the 100 largest school districts compared to 5.4 percent for the average school district (table A).

Ninety of the 100 largest school districts reported data for Title I eligible schools for the 1999–2000 school year. The percentage of Title I eligible schools in the 90 districts varied widely, from 3.3 percent in De Kalb County School District, Georgia, to 100 percent in the Philadelphia City School District, Pennsylvania.

Among the 52 of the 100 largest school districts that either reported charter school data or were located in states that did not have charter schools in the 1999–2000 school year, the largest number of charter schools were in Puerto Rico (119), Los Angeles Unified (33), and the District of Columbia (27).

Student body

The 100 largest school districts are not homogeneous, and certain student characteristics, such as race/ethnicity, poverty level, and disability status, vary across the districts.

The 100 largest districts, with 23 percent of the nation's public school students, serve 40 percent of the 18.5 million minority public school students.[5] In the 100 largest school districts, 68 percent of students are minority students compared to 40 percent of students nationally (table D). In

[5]For the 100 largest school districts, the numbers of students in different racial/ethnic categories are reported at the school level and are aggregated up to the school district level. The total number of minority students (18.5 million) was estimated by taking the percent of minority students among schools that reported race/ethnicity (97.3 percent) and applying this to the total number of public school students.

Table D.—Percentage of students eligible for free or reduced-price lunch and percentage of minority enrollment in the 100 and 500 largest school districts, and in the nation:[1] School year 1999–2000

	100 largest school districts	500 largest school districts	All school districts
Percentage of schools reporting free and reduced-price lunch	90.3	89.9	87.1
Membership eligible for free or reduced-price lunch of those who reported free and reduced-price lunch	[2]53.6	[2]47.3	[2]38.9
Percentage of schools reporting minority membership	97.3	97.7	97.5
Percentage minority enrollment	68.0	57.7	39.6
American Indian/Alaska Native	0.5	0.7	1.3
Asian/Pacific Islander	6.8	6.1	4.2
Hispanic	30.8	25.9	17.1
Black, non-Hispanic	29.9	25.0	17.0
Percentage White, non-Hispanic enrollment	32.0	42.2	60.3

[1]Includes outlying areas, Bureau of Indian Affairs, and Department of Defense schools.

[2]These percentages should be interpreted with caution; four states (AZ, IL, TN, and WA) did not report free and reduced-price lunch eligibility and are not included in the national total. Also, states may not have reported students eligible for reduced-price meals, and a number of states reported participation instead of eligibility data, which may not be strictly comparable. Percentages are based on those schools that reported.

NOTE: Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 1999–2000, and "Local Education Agency Universe Survey," 1999–2000. (Originally published as table C on p. 5 of the complete report from which this article is excerpted.)

fact, one-third (33) of the 96 districts where minority membership data are available have over 75 percent minority students. Eight of the 10 largest school districts have over 75 percent minority student membership.

Even with the relatively high minority membership in the 100 largest school districts, 40 of the 96 districts report 50 percent or more of their students as White, non-Hispanic. Of these 40 districts, 9 report minority representation of less than 25 percent of their student body. In 18 of the 100 largest districts, half or more of the membership is Black, non-Hispanic. Twelve districts report that the majority of students are Hispanic; 3 of these are among the 5 largest districts. In Hawaii, which is one district, and San Francisco Unified, California, the majority of the students are Asian/Pacific Islanders.

For the 1998–99 school year, 46 of the 100 largest school districts were in states that could report dropouts using the NCES definition of dropouts. The 9th- through 12th-grade dropout rate in those 46 districts ranged from 1 to 24 percent. Twenty-five of the districts had a 9th- through 12th-grade dropout rate between 3 and 10 percent.

The 100 largest school districts have a disproportionate percentage of students eligible for the free and reduced-price lunch program relative to all public school districts. Among schools that reported free and reduced-price lunch eligibility, 54 percent of students in the 100 largest school districts are eligible, compared to 39 percent of students in all districts (table D). Among the 92 of the 100 largest school districts that reported data on free lunch, 46 districts report over 50 percent of their students eligible for the free and reduced-price lunch program.

Twelve percent of students in the 100 largest school districts have Individualized Education Programs (IEPs) for students with disabilities. In the largest school district, New York City Public Schools, 14 percent, or 146,949 students, are reported to have IEPs. Less than 3 percent of schools in the 100 largest school districts are special education schools.

Revenues and expenditures for fiscal year 1998[4]

In the 1997–98 school year (fiscal year 1998), $329 billion were collected for public elementary and secondary education in the 50 states, the District of Columbia, and outlying areas; 22 percent ($74 billion) of this revenue went to the 100 largest school districts. Of the $74 billion in revenue to the 100 largest school districts, a little less than one-third ($22 billion) was received by the 5 largest school districts (New York City Public Schools, Los Angeles Unified, Puerto Rico Department of Education, City of Chicago School District, and Dade County School District). The revenues from the federal government received by 99 of the 100 largest school districts comprised between 2 and 17 percent of all revenues to the district, the exception being the Puerto Rico Department of Education (27 percent).

The 100 largest school districts spent $64 billion (22 percent) of the $288 billion in current expenditures spent on the 50 states, the District of Columbia, and outlying areas in 1997–98. The two largest school districts, New York City Public Schools and Los Angeles Unified, spent one out of every five dollars expended by the 100 largest school districts. All but 2 of the 100 largest school districts devoted 50 percent or more of their current expenditures to instruction (Jefferson County, Colorado, spent 49.9 percent, while the District of Columbia spent 43.4 percent). Of the 100 largest school districts, New York City Public Schools spent the greatest proportion, 72 percent, on instruction.

[4]National revenue and expenditure data were calculated from the state-level "National Public Education Financial Survey" (NPEFS) and can be found in *Revenues and Expenditures for Public Elementary and Secondary Education: School Year 1997–98* (Johnson 2000). The percentage distribution is based on school district–level data found on the Census Bureau's "Annual Survey of Government Finances: School Systems" (F-33 survey). Department of Defense and Bureau of Indian Affairs schools are not included in these national totals.

The current expenditures per pupil were $6,189 for all districts in the 50 states and the District of Columbia, slightly higher than the $5,949 in the 100 largest school districts. Of the 100 largest school districts, 14 districts spent more than $7,000 per pupil (with Boston School District, Massachusetts, spending the most at $10,293 per pupil).

Changes in the 100 largest school districts between 1989 and 1999

While there has been a lot of movement within the 100 largest school districts over time, between the 1989–90 and 1999–2000 school years, the 100 largest districts remained very similar. Only 10 of the 100 largest districts in the 1999–2000 school year were not in the 100 largest in the 1989–90 school year. Clark County School District, Nevada, was the only district to move into the 10 largest districts between these years (it moved from a rank of 15 in 1989–90 to 7 in 1999–2000) (table B). Clark County includes the Las Vegas metropolitan area, which was the fastest growing metropolitan area in the country between 1990 and 1998 (Bureau of the Census 2000).

The number of students in the 100 largest school districts increased by 16 percent between 1989–90 and 1999–2000, the number of teachers increased by 23 percent, and the number of schools increased by 10 percent. However, while the numbers of students, teachers, and schools in the 100 largest school districts have increased between these years, the proportion of the national total these numbers comprised was essentially unchanged. For example, the number of students in the 100 largest school districts went from 22.8 percent of all districts in 1989–90 to 23.0 percent in 1999–2000 (table E).

Table E.—Number of students, teachers, and schools in the nation[1] and the 100 largest school districts in the United States in school years 1989–90 and 1999–2000

	1989–90			1999–2000		
	All districts[2]	100 largest districts	Percentage of national total	All districts[2]	100 largest districts	Percentage of national total
Students	41,447,425	9,450,085	22.8	47,706,027	10,962,476	23.0
Full-time-equivalent (FTE) teachers	2,331,468	508,228	21.8	2,959,944	627,436	21.2
Schools	85,130	14,153	16.6	94,090	15,563	16.5

[1]For 1999–2000, includes outlying areas, Bureau of Indian Affairs, and Department of Defense schools.

[2]The addition of the Bureau of Indian Affairs and Department of Defense schools accounts for 0.3 percent more students, 0.3 percent more teachers, and 0.4 percent more schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Local Education Agency Universe Survey," 1989–90 and 1999–2000, and "State Nonfiscal Survey of Public Elementary/Secondary Education," 1989–90 and 1999–2000. (Originally published as table D on p. 6 of the complete report from which this article is excerpted.)

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For technical information, see the complete report:

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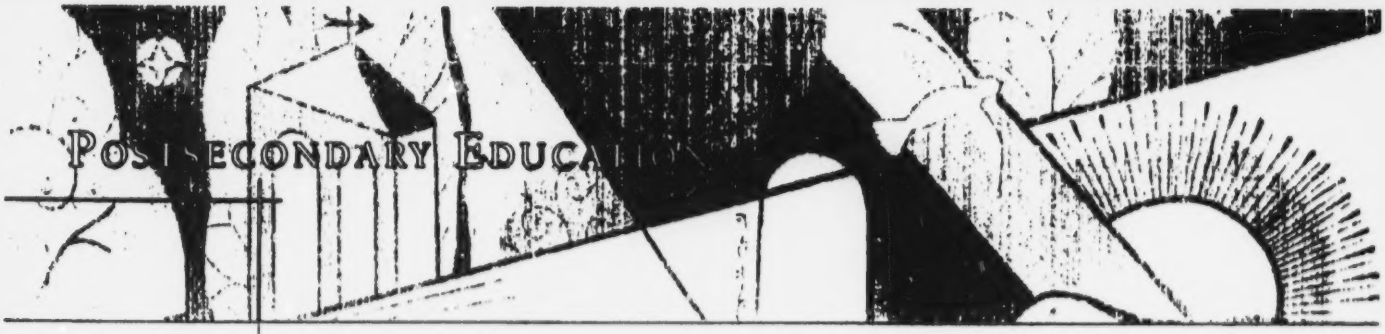

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Institutional Policies and Practices: Results From the 1999 National Study of Postsecondary Faculty, Institution Survey

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This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the NCES National Study of Postsecondary Faculty (NSOPF).

About 1.1 million faculty teach in our nation's approximately 3,400 degree-granting postsecondary institutions.[1] The role of faculty in these institutions is critical to the success of postsecondary education in the United States. The National Study of Postsecondary Faculty (NSOPF), conducted by the National Center for Education Statistics (NCES), includes both a survey of institutions that focuses on policies and practices affecting faculty and a survey of faculty themselves. This report presents findings from the "Institution Survey" of the 1999 NSOPF (NSOPF:99),[2] the third in the series. Institutions were asked about their policies and practices as of fall 1998.

Faculty and Their Institutions

The distribution of faculty across U.S. degree-granting postsecondary institutions reflects the diversity of postsecondary education in the United States (table A). For example, public research institutions accounted for 3 percent of the nation's degree-granting postsecondary institutions, yet they employed 18 percent of the nation's faculty in fall 1998. In contrast, private liberal arts colleges constituted 21 percent of all degree-granting institutions, but employed about 9 percent of all faculty.

A large proportion of all faculty, about two-fifths, worked part time (table B). Some institutions relied on part-time faculty to a greater degree than others. Almost two-thirds (65 percent) of the faculty at public 2-year institutions held part-time appointments. At the other end of the spectrum, about one-fifth (21 percent) of the faculty at public research institutions worked part time.

Institutions also provided information about faculty union activity. Twenty-five percent of all institutions reported that some of their faculty were represented by a union.

Teaching Assignments and Performance

Full-time faculty were responsible for teaching most of the undergraduate credit hours.[3] Based on percentages reported

[1]The term "faculty" refers to all employees who have faculty status, regardless of instructional responsibilities, and individuals with instructional responsibilities, regardless of faculty status.

[2]The NSOPF:99 "Institution Survey" included Title IV participating, degree-granting institutions; public and private not-for-profit institutions; institutions that offer 2-year or 4-year programs; institutions that offer associate's, bachelor's, or advanced degrees; and institutions located in the United States. Private for-profit and non–Title IV institutions were excluded from the survey.

[3]For this survey, credit hours were defined as the number of course credits or contact hours multiplied by the number of students enrolled.

Table A.—Percentage distribution of degree-granting postsecondary education institutions, faculty, and enrolled students, by type and control of institution: Fall 1998

Type and control of institution	Institutions	Faculty			Students enrolled[1] (fall 1997)
		Total	Full-time	Part-time	
All institutions[2]	100	100	100	100	100
Public research	3	18	24	9	16
Private not-for-profit research	1	7	8	5	4
Public doctoral[3]	3	8	10	5	7
Private not-for-profit doctoral[3]	2	4	3	4	2
Public comprehensive	8	12	14	11	15
Private not-for-profit comprehensive	9	7	6	8	6
Private not-for-profit liberal arts	21	9	10	8	7
Public 2-year	33	29	18	44	36
Other[4]	21	6	6	7	6

[1]Student enrollment data for the fall of 1997 were obtained from the Integrated Postsecondary Education Data System, "Fall Enrollment Survey" (IPEDS-EF:97). Fall 1997 data were missing for 119 of the approximately 3,200 institutions in the population.

[2]All public and private not-for-profit Title IV participating, degree-granting institutions in the 50 states and the District of Columbia.

[3]Includes institutions classified by the Carnegie Foundation as specialized medical schools and medical centers.

[4]Public liberal arts, private 2-year, and religious and other specialized institutions, except medical schools and medical centers.

NOTE: Percentages may not add to 100 because of rounding. Faculty includes all faculty and instructional staff.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty, "Institution Survey" (NSOPF:99) and the Integrated Postsecondary Education Data System, "Fall Enrollment Survey" (IPEDS-EF:97).

Table B.—Percentage distribution of faculty, by employment status and by type and control of institution: Fall 1998

Type and control of institution	Employment status	
	Full-time	Part-time
All institutions[1]	57	43
Public research	79	21
Private not-for-profit research	69	31
Public doctoral[2]	72	28
Private not-for-profit doctoral[2]	49	51
Public comprehensive	64	36
Private not-for-profit comprehensive	50	50
Private not-for-profit liberal arts	63	37
Public 2-year	35	65
Other[3]	53	47

[1]All public and private not-for-profit Title IV participating, degree-granting institutions in the 50 states and the District of Columbia.

[2]Includes institutions classified by the Carnegie Foundation as specialized medical schools and medical centers.

[3]Public liberal arts, private 2-year, and religious and other specialized institutions, except medical schools and medical centers.

NOTE: Percentages may not add to 100 because of rounding. Faculty includes all faculty and instructional staff.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty, "Institution Survey" (NSOPF:99).

by individual institutions, full-time faculty covered an average of 71 percent of all undergraduate credit hours at their institution, part-time faculty covered an average of 27 percent of all undergraduate credit hours, and teaching assistants and other instructional staff each covered an average of about 1 percent of all undergraduate credit hours (figure A).[4] Public research institutions assigned more undergraduate credit hours to teaching assistants than any other institution type (14 percent).

Most institutions have policies for evaluating the quality of their faculty's instruction. Measures based on student inputs or results were used by most institutions, with 86 percent using at least one student-based measure to evaluate full-time faculty; institutions most commonly employed student evaluations of instructional quality (85 percent). Most institutions also used administrative-level evaluations, with 95 percent using at least one administrative-level measure to evaluate full-time faculty; two of the most common administrative-level measures were department chair evaluations (83 percent) and dean evaluations (77 percent).

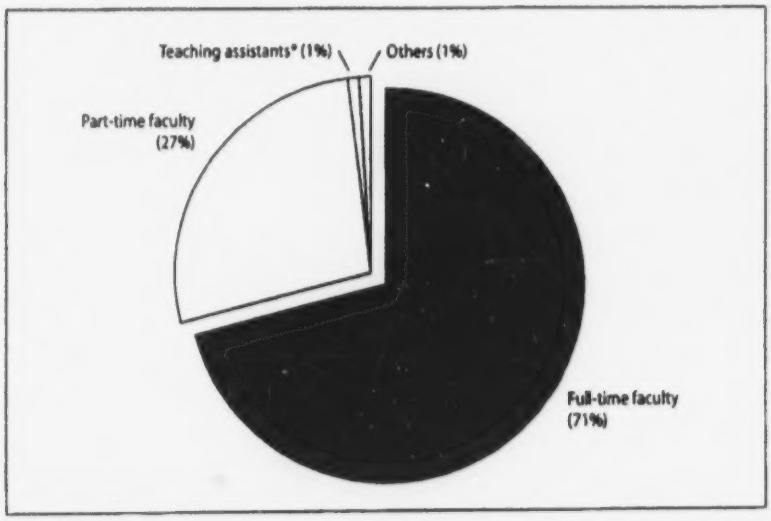
[4]These estimates are based on institution reports of assigned undergraduate credit hours. The actual amount of undergraduate credit hours taught by teaching assistants might be higher.

Faculty Transitions

About two-fifths (44 percent) of institutions experienced average growth of 20 percent in the size of their faculty. Another two-fifths (44 percent) experienced no change in the number of full-time faculty from fall 1993 to fall 1998. The remaining 12 percent of institutions averaged a 9 percent decrease in the size of their faculty.

In fall 1998, 8 percent of all full-time faculty were new hires at their institution; a similar percentage of all full-time faculty left their positions between fall 1997 and fall 1998: 29 percent of those who left did so due to retirement and the remaining 71 percent left for a variety of other reasons. Some of these departures may have been related to actions taken by the

Figure A.—Percentage distribution of undergraduate instructional credit hours assigned to various levels of staff: Fall 1998



*These estimates are based on institution reports of assigned undergraduate credit hours. The actual amount of undergraduate credit hours taught by teaching assistants might be higher.

NOTE: Faculty includes all faculty and instructional staff. Credit hours were defined as the number of course credits or contact hours multiplied by the number of students enrolled. Institutional respondents reported the percentage of instructional credit hours covered by each type of instructor at their institution. For this report, these percentages were averaged within an institution category. Therefore, institutions of different sizes were given equal weight in the average and the percent reported might not reflect the actual percentage of all credit hours covered by each type of instructor.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty, "Institution Survey" (NSOPF:99).

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institutions. Between 1993 and 1998, 40 percent of all institutions took at least one action to reduce the size of the full-time faculty. Some institutions (22 percent) accomplished this goal by replacing full-time faculty with part-time faculty.

The Tenure System[5]

Most institutions (66 percent) had tenure systems in place in fall 1998. Approximately 100 percent of public research, private not-for-profit research, and public doctoral institutions had tenure systems. Tenure systems were less common at private comprehensive (58 percent), private liberal arts (66 percent), and public 2-year institutions (61 percent).

As of fall 1998, 48 percent of all full-time faculty had tenure at their respective institutions. Of the remaining faculty, 19 percent were on tenure track[6] and 20 percent were not on tenure track (figure B). Approximately 12 percent of all full-time faculty worked at institutions without tenure systems. Of the newly hired faculty, 39 percent were hired into tenure-track positions and 45 percent were hired into non-tenure-track positions.

In the 1997–98 academic year, 16 percent of the nation's nontenured, tenure-track faculty came up for tenure review. Overall, 81 percent of those reviewed received tenure. Public research institutions granted tenure to 90 percent of those reviewed. At the other end of the spectrum, private comprehensive institutions granted tenure to 65 percent of those reviewed. Most institutions (89 percent) limited the number of years that a faculty member may spend on tenure track. The most common limits were 6 years (34 percent) and 7 years (28 percent).

Between 1993 and 1998, 63 percent of all institutions took at least one action related to tenure. The most common action was to offer early or phased retirement to tenured faculty members (48 percent).

Faculty Benefits

As part of compensation packages, institutions supported a variety of benefits for their faculty in fall 1998. Nearly all institutions (98 percent) contributed in some degree to benefits for full-time faculty and about one-half (53 percent) contributed for part-time faculty. Among those institutions that contributed, the value of benefits added an average of 26 percent to the salaries of full-time faculty and an average of 18 percent to the salaries of part-time faculty.[7]

Almost all institutions (99 percent) offered retirement plans to full-time faculty. Institutions primarily offered TIAA/CREF (72 percent).[8] Other 403(b) plans were also fairly common options, offered at 54 percent of all institutions.

Almost all institutions provided insurance benefits for their full-time faculty. Most institutions provided disability insurance (90 percent) and life insurance (94 percent), and many institutions provided these two benefits with a full subsidy (49 and 57 percent, respectively). Medical insurance or care (99 percent) and dental insurance or care (89 percent) were frequently part of institutions' benefits packages. However, these were usually not fully subsidized.

Institutions commonly provided some benefits to full-time faculty's family members. These included benefits directly for other family members (like tuition remission for a spouse or child; 67 percent for each) and benefits related to parenting (like paid maternity or paternity leave; 58 and 39 percent, respectively). Child care was sometimes provided by institutions (23 percent), although usually unsubsidized.

Other common additions to overall benefits packages for full-time faculty included paid sabbatical leave (76 percent), transportation or parking (56 percent), wellness or health programs (57 percent), and employee assistance programs (54 percent).

Many institutions provided the benefits listed above to part-time faculty. However, in almost every case, the

[5] "Tenure" refers to the status of a personnel position or a person occupying a position or occupation with respect to the permanence of position.

[6] Tenure-track positions lead to the consideration for tenure.

[7] The average percentage of income part-time faculty received in the form of benefits (18 percent) may mask some of the variability in institution policies. Some institutions may have reported the amount spent on benefits for part-time faculty as a percentage of the total amount paid to all part-time faculty. Other institutions may have reported the average percentage of the total salary contributed in benefits just for the part-time faculty receiving benefits.

[8] TIAA/CREF, Teachers Insurance and Annuity Association and College Retirement Equities Fund, offers a 403(b) retirement plan to not-for-profit colleges and universities and not-for-profit research organizations. There are other types of 403(b) plans as well that some colleges and universities offer. TIAA/CREF is a major provider of 403(b) plans to the education and research communities.

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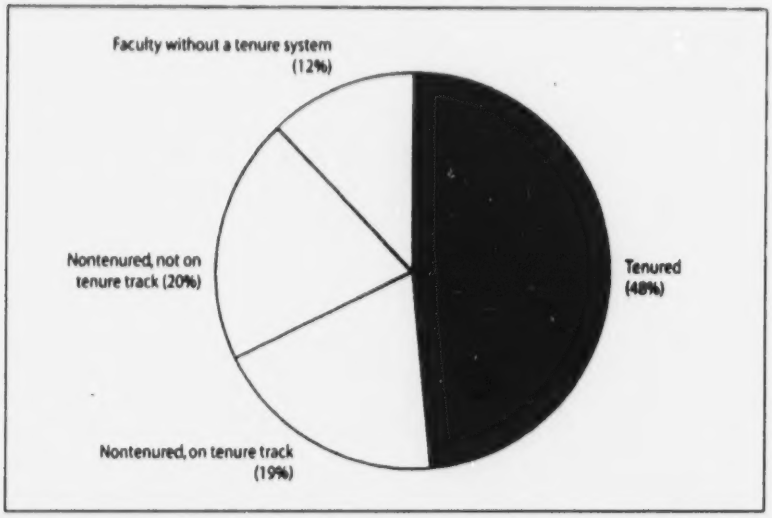
Figure B.—Percentage distribution of full-time faculty, by tenure status: Fall 1998



NOTE: Percentages may not add to 100 because of rounding. Faculty includes all faculty and instructional staff.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty, "Institution Survey" (NSOPF:99).

benefit was less commonly offered to part-time faculty than to full-time faculty. In addition, many institutions required that part-time faculty meet certain eligibility requirements before receiving benefits. Of those institutions that provided retirement plans to part-time faculty, 69 percent had eligibility requirements for retirement plans. Across all institutions with part-time faculty, 45 percent had eligibility requirements for other benefits provided to part-time faculty.

Data source: The NCES 1999 National Study of Postsecondary Faculty, "Institution Survey" (NSOPF:99).

For technical information, see the complete report:

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This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the NCES National Adult Literacy Survey.

Introduction

The National Adult Literacy Survey provides the most detailed portrait ever created of the English literacy abilities of our nation's adults. Funded by Congress through the U.S. Department of Education, National Center for Education Statistics (NCES), the survey was conducted in 1992. In 1993, NCES published a summary overview of the results, which described the literacy skills of adults in the United States and discussed differences among various groups in the population (Kirsch et al. 1993). Subsequently, NCES invited people who had served on the two advisory committees for the survey to produce a series of reports that look at the results of the survey, addressing different special topics in ways they believed would interest literacy workers, policymakers, and the general public. This report explores the relationship between formal schooling and adult literacy proficiency in a more detailed and analytical way than was possible in the initial overview.

The most pervasive result of the National Adult Literacy Survey is that level of formal schooling is strongly related to adult literacy proficiency. This may strike some as surprising, given much recent criticism of schools for failing to teach reading effectively and for failing to make school learning relevant to real-life tasks. Nonetheless, increased levels of formal schooling correlate with substantial gains in adult literacy proficiency for all groups, at all levels of education. This report investigates that relationship in several ways: by exploring how demographic characteristics such as race/ethnicity and age relate to literacy proficiency and formal schooling; by providing a picture of who drops out of school and what impact that decision has on adult literacy proficiency; by looking at those least effectively served by schools—those whose proficiencies are in the two lowest levels on the literacy scales; and by exploring how adult literacy proficiencies map out into the world of work.

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The survey

The National Adult Literacy Survey avoided characterizing adults as either "literate" or "illiterate." Instead, it profiled the literacy abilities of adults based on their performance on a wide array of tasks using the kinds of materials they actually encounter in their daily lives. The tasks assessed such literacy skills as finding information, making inferences, interpreting tables, reading maps, and making calculations.

The information was gathered by trained staff who interviewed over 13,600 adults in households across the country. The participants were randomly selected to represent the adult population of the country as a whole. An additional 1,000 adults were interviewed in each of 11 states that chose to participate in a concurrent survey designed to provide results that are comparable to the national data. Finally, 1,150 inmates in 80 federal and state prisons were surveyed. The prisons were randomly selected to represent prisons across the country, and the inmates themselves were randomly selected from each of the prisons. Overall, about 26,000 adults participated in the study.

Using an extensive background questionnaire, interviewers collected information about respondents' demographic characteristics, educational background, reading practices, and other characteristics related to literacy. Then participants responded to a set of literacy tasks. Analyses of their responses yielded proficiency scores that profiled their skills on three literacy scales—prose, document, and quantitative. The scales were each divided into five levels that define the increasing difficulty and complexity of the tasks associated with them. Combining the results of the background questionnaires with the literacy proficiency scores produced a wealth of information about the characteristics of people with different literacy skills.

Organization of this report

This report explores the links between education and literacy in four ways. First, the report discusses the relationship between literacy skills and formal schooling across different demographic subgroups. Second, it describes the literacy proficiencies and other characteristics of individuals who did not complete high school. Third, it examines the characteristics—educational and otherwise—of individuals whose proficiency scores were in the two lowest levels on the literacy scales. Finally, it discusses the proficiencies and characteristics of respondents in the workforce and explores some of the implications for adult educators. Following are highlights from the report.

Formal Education and Adult Literacy Proficiencies

The main finding that pervades the data on education in the National Adult Literacy Survey is that literacy proficiency is strongly related to level of formal schooling. Each successive level of formal education is accompanied by a rise in average literacy proficiencies. This does not prove a causal relationship, but it suggests that high literacy abilities and high levels of education strongly reinforce one another. Given the many criticisms of America's schools in recent decades, the strong association of formal education and adult literacy skills deserves our attention. The suspicion that, on average, more schooling fosters higher levels of adult literacy skills carries policy implications. The following data show how the relationship between schooling and literacy plays out on the 500-point scale for prose literacy. Adults who did not complete high school average 231 on the prose scale, those who completed high school average 270, and those with a 4-year college degree average 322 (table A).

Literacy proficiency and race/ethnicity

Literacy proficiency also relates strongly to race/ethnicity. The average prose proficiency of White adults is 286, while that of Black adults is 237 and that of Hispanic adults is 215. The data demonstrate that schooling plays a double role in shaping the English literacy proficiencies by race/ethnicity: first, some groups are able to attain more schooling than others, which, on average, correlates with higher literacy proficiencies; second, at a given level of educational attainment, groups differ in average literacy attainment. This second phenomenon may be caused by a difference in the *quality* of schooling experienced by different groups and by other factors that vary by race/ethnicity. For example, the correlation between racial/ethnic groups and literacy proficiency is partially explained by differences in variables such as parental education and income, which are discussed in the complete report. However, the data do not measure differential quality of schooling and other factors, such as motivation and opportunity, that might affect the acquisition of literacy skills.

Literacy proficiency and age

An interesting relationship is observed between literacy proficiency and age. Average literacy proficiencies rise with each older cohort up to those who are in their forties and then decline in the older population. The rise from the cohort in their twenties to the cohort in their forties is not due to more effective schooling in earlier decades—indeed, there is no decline in the levels of literacy proficiency at a

Table A.—Average proficiencies on each literacy scale, by education level: 1992

Education level	Average proficiency		
	Prose	Document	Quantitative
Still in high school	271	274	269
0 to 8 years	177	170	169
9 to 12 years	231	227	227
GED	268	264	268
High school diploma	270	264	270
Some college	294	290	295
2-year degree	308	299	307
4-year degree	322	314	322
Graduate studies/degree	336	326	334

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992. (Taken from figure 2.1 on p. 17 of the complete report from which this article is excerpted.)

given level of formal education when comparing 40-year-olds to 20-year-olds. Rather, the differences occur because many people in the cohorts of 30-year-olds and 40-year-olds have continued to get formal education as adults. This is a picture of a *learning society*. The continuing formal education of adults is much reduced beyond age 50, as are the initial schooling levels of Americans in those older cohorts; the literacy proficiencies of the older cohorts are lower as well. Everything seems to point toward a connection between formal education and adult literacy skills, across all groups and all ages.

School Noncompletion and Literacy

In general, proficiency on all three dimensions of literacy is lowest for individuals who have not graduated from high school, higher for high school graduates and GED holders, and highest for individuals who have attended post-secondary schooling. This pattern is found for Black, Hispanic, and White populations alike; for males and females alike; and for adults in all age ranges. At the same time, the average proficiencies of Hispanic adults who did not begin or did not complete high school—a group representing almost half of all Hispanic individuals sampled—are substantially below those of other school noncompleters. The primary language spoken at home as a child may provide a partial explanation. High school noncompleters who grew up in Spanish-speaking homes demonstrate lower proficiencies than noncompleters from homes in which the primary language was not Spanish, even though high school graduates who grew up in Spanish-speaking homes do not exhibit this handicap.

School noncompletion and work

For high school graduates, higher proficiency is associated with an increased likelihood of being employed. Among high school noncompleters, however, there is little or no relationship between literacy proficiency and employment. Thus, for individuals who do not complete high school, increased literacy proficiency does not provide an advantage in obtaining part-time or full-time work.

High school noncompleters who are out of the workforce demonstrate extremely low literacy proficiencies. Among noncompleters, 78 percent of those 55 years of age or older are out of the workforce, as are 27 percent of those under 55. Smaller percentages of high school graduates in either age bracket are out of the workforce and, at the same time, their literacy proficiencies are not nearly as low.

Heterogeneity among noncompleters

In spite of the handicap in average literacy proficiency, individuals who do not complete high school are a diverse group. They leave school for a variety of reasons and engage in a wide range of work, education, and literacy-related activities after leaving. For example, individuals who reported leaving school because of loss of interest or behavior problems or because of pregnancy have significantly higher literacy proficiencies as adults and engage in

significantly more literacy practices in comparison with individuals who dropped out for other reasons.

A small but noteworthy proportion of noncompleters enrolled in part-time or full-time educational programs after leaving school. Approximately 18 percent of noncompleters reported studying for a high school equivalency diploma and, by a conservative estimate, at least 4 percent completed the GED program. The average literacy proficiency of GED completers is equivalent to that of high school graduates. Given the generally powerful correlation between formal schooling and adult literacy skills, it is important to keep in mind the range of literacy skills *among* adults at a given education level, including those who did not complete high school.

Adults Performing at the Two Lowest Literacy Levels

Not only is there a range of literacy proficiencies among those who did not complete high school, but there is also, conversely, a range of educational attainment among those whose literacy proficiencies are at the two lowest levels in the National Adult Literacy Survey. Thus, 19 percent of those who began but did not complete high school perform at level 3 or above on the prose literacy scale, while 14 percent of those with a college degree (an associate's degree or higher) perform at level 1 or 2 on the prose scale (table B). For policy purposes, the two-edged finding of the survey is important: educational attainment correlates strongly and regularly with literacy proficiency, yet some individuals with many years of schooling are among the group with the lowest literacy proficiencies.

Nearly half the adults in America perform at level 1 or level 2. They are diverse in terms of educational experience and social characteristics. Nonetheless, some relationships are evident, and they are relevant to discussions of literacy and education. First, although level of education does not predict literacy proficiency in individual cases, there is a strong relationship between literacy and education. For example, among respondents who went to high school but did not graduate, 80 percent perform at level 1 or 2 on the prose scale; among those who had some college but no degree, 31 percent do. There is also a relationship between literacy and race/ethnicity: among Black adults, as well as among Hispanic adults, 75 percent demonstrate prose proficiency at level 1 or 2, compared with 39 percent of White adults.

Some respondents to the National Adult Literacy Survey completed the background questionnaire but completed none of the literacy tasks, or did not complete enough to produce proficiency scores. If they had been excluded from the tables, the sample would no longer have been nationally representative; thus, procedures for estimating their probable scores were implemented. About 12 percent of the entire sample consisted of such "nonresponders." Among those classified at level 1, however, the percentage was much higher; for example, about 41 percent of those performing at level 1 on the prose scale were nonresponders. Nonresponders were asked why they did not complete the literacy tasks; if their reply was unrelated to reading ability (e.g., they had a physical disability, or had no time, or simply refused to continue), the average scores of respondents with similar background characteristics (age, ethnicity, gender, region) were factored in when estimating their literacy proficiency. If their reason was related to literacy (e.g., they did not speak English or did not read well), then the estimate was lower. The estimates were also influenced by any literacy tasks the nonresponder did complete.

Unfortunately, there is no way to be certain that these estimates did not underestimate the literacy abilities of nonresponders, so caution is required in discussing adults demonstrating proficiency at level 1. It may be that some nonresponders had literacy abilities above level 1 but wished to avoid the discomfort of having their literacy abilities tested and rated. Although the estimation procedures might underestimate some nonresponders' literacy proficiencies, the same attitudes or anxieties that made them reluctant to complete the survey may cause them to avoid other literacy tasks in their everyday lives. Low literacy is thus a form of double jeopardy in people's lives: it is both a technical disadvantage and a social stigma. It can both keep one from learning what one needs to know and add insult to injury by embarrassing an individual. This is a double disadvantage that policymakers and adult literacy workers need to keep in mind.

Education for the Workplace

The data show that many workers who perform at level 1 or 2 are laborers, in food service, in child care, and in maintenance occupations. These individuals are unlikely to succeed consistently at the literacy tasks of moderate difficulty demanded in many workplaces. In some occupational areas—service and farming/forestry, for example—a substantial minority of workers say they rarely read on the job, but most workplaces are alive with literacy activities and literacy demands; even in traditionally lower status jobs, many workers must write memoranda and reports. Workers who rarely read at home or on the job, however,

Table B.—Percentages at each level on the prose literacy scale and average prose proficiencies, by sex, race/ethnicity, education level, employment status, and literacy practices: 1992

	Percent						
	Level 1 (225 or lower)	Level 2 (226 to 275)	Level 3 (276 to 325)	Level 4 (326 to 375)	Level 5 (376 or higher)	Total	Average prose proficiency
Total	21	27	32	17	3	100	272
Sex							
Male	22	26	31	18	4	100	272
Female	20	28	33	17	3	100	273
Race/ethnicity							
Black	38	37	21	4	(#)	100	237
White	14	25	36	21	4	100	286
Hispanic	49	26	19	6	1	100	215
Level of education							
Still in school	16	36	37	11	(#)	100	271
Less than high school	75	20	4	(#)	(#)	100	177
Some high school	42	38	17	2	(#)	100	231
GED or high school diploma	16	36	37	10	1	100	270
Some college (no degree)	8	23	45	22	3	100	294
College degree (2 or more years)	3	11	33	41	12	100	325
Employment status							
Full-time	13	24	36	23	5	100	288
Part-time	14	26	36	20	4	100	284
Unemployed	24	35	29	11	1	100	260
Out of work	29	29	29	13	2	100	256
Retired	41	32	21	5	1	100	235
Frequency of personal literacy practices							
Rarely	53	27	15	4	1	100	212
Weekly	18	30	33	16	3	100	275
Often	9	24	38	25	5	100	297
Frequency of job literacy practices							
Rarely	35	30	25	10	1	100	243
Weekly	15	30	35	17	3	100	280
Often	7	22	39	26	6	100	301

#Too small to report.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992. (Originally published as table 4.1 on p. 77 of the complete report from which this article is excerpted.)

demonstrate the lowest proficiencies, which is cause for concern as research indicates that learning loss occurs when there is lack of practice.

Enrollment in basic skills programs

About 8 percent of all employees have sought basic skills training from an employer or union program, publicly sponsored classes or tutoring, or other program. Surprisingly, the percentage is about the same in all occupational groups and at all education levels. Managerial and professional workers reported that they had sought basic skills training in the same proportions as laborers or clerical workers. Also, those enrolled in basic skills training were distributed equally across all education levels.

Where adults learn their skills

Not surprisingly, most workers reported that basic prose reading ability was learned at school or at home, not at

work. But other literacy abilities, some respondents said, were learned mainly at work, and some interesting patterns were evident in the data. For example, people with lower education levels more often said that they learned how to manipulate documents, graphs, and tables primarily at work, perhaps because they had limited exposure to them at school or at home. People with higher education levels tended to report that they learned to write at work, suggesting either that they are asked to write more at work and thus learn from the experience or that they are offered more actual instructional opportunities to improve their writing at work.

The National Adult Literacy Survey confirms a picture of workers with widely varying literacy proficiencies and a workplace with literacy demands for most workers. The data should be helpful for those planning literacy instruction in workplace settings.

Conclusion

If there is one simple message about education and literacy revealed by the National Adult Literacy Survey, it is that education matters. Formal education correlates strongly with higher literacy abilities at all levels and among all groups. Such correlations do not prove that education *causes* higher literacy abilities, but anyone who thinks that formal education only functions to hand out credentials, or that schools are failing to make a difference in people's actual functional skills, must reckon with these data. They show substantial literacy gains at every increasing level of formal schooling among all groups, including males and females, different racial/ethnic groups, and different age groups.

The literacy problem is complex, however, and no simple message is very helpful. The results also contain many double messages about the relationship between literacy and education. First, there are always a substantial number of individuals who defy such relationships, and policymakers must keep these exceptions in mind. There are people with a high level of educational attainment and low literacy skills, and vice versa. There are high school noncompleters with average literacy skills, and executives with minimal literacy skills. Second, the association of formal schooling with higher literacy skills is attributable partially to other factors, such as high parental education or high economic status. People with various advantages also tend to get a lot of education. Thus, the answer to the literacy problem in the United States will never be simply more education for everyone. Third, not all groups gain equal benefit from more education, whether measured in terms of literacy proficiency or other cognitive outcomes. In particular, there is a relationship not only between race/ethnicity and educational attainment, but also between race/ethnicity and literacy proficiency at a given education level. Thus, policymakers must look at how formal education operates for different groups, as well as at factors beyond the schools that influence the acquisition of literacy abilities.

In summary, the National Adult Literacy Survey reinforces traditional notions about the importance of formal schooling but shows us a world in which formal schooling is enmeshed in social, familial, and economic contexts that also influence the attainment and uses of literacy.

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Data source: The 1992 National Adult Literacy Survey.

For technical information, see the complete report:

Kaestle, C.F., Campbell, A., Finn, J.D., Johnson, S.T., and Mikulecky, L.J. (2001). *Adult Literacy and Education in America* (NCES 2001–534).

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English Literacy and Language Minorities in the United States

Elizabeth Greenberg, Reynaldo F. Macías, David Rhodes, and Tsze Chan

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are primarily from the NCES 1992 National Adult Literacy Survey.

Introduction

English Literacy and Language Minorities in the United States is one report in a series of National Center for Education Statistics (NCES) publications based on the 1992 National Adult Literacy Survey. Previously released reports in this series include *Adult Literacy and Education in America* (Kaestle et al. 2001), *Literacy of Older Adults in America* (Brown et al. 1996), *Literacy Behind Prison Walls* (Haigler et al. 1994), and *Literacy in the Labor Force* (Sum 1999).

The increase in immigration to the United States in the 1970s and 1980s raised concerns among policymakers, researchers, and members of the public about how well immigrants were being integrated into the society and economy of the United States. This report addresses these concerns by providing an in-depth look at adult residents of the United States who were either born in other countries or were born in the United States but spoke a language other than English as young children. The report explores the English fluency and literacy of this population, their fluency and literacy in their native non-English languages, and their employment patterns and earnings.

Survey purpose

The 1992 National Adult Literacy Survey provides the most detailed portrait ever of the English literacy abilities of adults living in the United States. The survey sought to avoid previous characterizations of all adults as either "literate" or "illiterate." Instead, it profiled the literacy abilities of adults based on their performance on a wide array of tasks that reflect the types of materials and demands they encounter in their daily lives (e.g., interpreting instructions from a warranty, reading maps, balancing a checkbook, or figuring out a tip).

Survey methodology

Survey data were gathered in 1992 by trained staff who interviewed about 13,600 adults residing in U.S. households. The adults were randomly selected to represent the adult population of the country as a whole. In addition, approximately 1,000 adults were interviewed in each of 11 states that chose to participate in a concurrent survey designed to provide state-level results comparable to the national data. Finally, nearly 1,150 inmates in 80 state and federal prisons were surveyed. The prisons were randomly selected to represent prisons across the country, and the inmates themselves were randomly selected from each prison. Overall, approximately 26,000 adults participated in the survey.

Interviewers administered an extensive background questionnaire that collected information about respondents' language background, demographic characteristics, educational background, reading practices, workforce participation, and other areas related to literacy. Each survey participant also responded to a set of diverse literacy tasks. As a result of their responses to the literacy tasks, adult participants received proficiency scores on three scales that capture increasing levels of difficulty in English prose, document, and quantitative literacy. Data from the background questionnaires, along with the English literacy proficiency scores, produced a wealth of information about the characteristics of people with different literacy skills.

Major Findings

Age matters

The age at which an individual learned to speak English was related to his or her English literacy proficiency as an adult. On average, individuals who entered the United States before age 12 had English literacy proficiency as adults comparable to members of the same racial and ethnic groups who were born in the United States (table A). Virtually everyone who was born in the United States or who immigrated to the United States before age 12 was fluent in English as an adult.

Many of the differences in English literacy proficiency between various racial or ethnic groups were due to differences in language backgrounds among the groups. Asian/Pacific Islander and Hispanic adults were more likely than Whites to have been born in a country other than the United States or to have been raised in homes where a language other than English was spoken. When differences in language backgrounds of members of these racial and ethnic groups were accounted for, the English literacy proficiency of Asians/Pacific Islanders was comparable to that of Whites, and the English literacy proficiency of Hispanics was slightly lower than that of Whites (table A).

Table A.—Average literacy proficiency scores by racial/ethnic group and age of arrival in United States: 1992

Average proficiency	Sample size	Population/1000	Average scores		
			Prose	Document	Quantitative
Total population					
U.S.-born	23,197	171,111	280	273	278
Arrived U.S. age 1 to 11	519	3,389	275	270	272
Arrived U.S. age 12 to 18	599	3,830	206	210	212
Arrived U.S. age 19 to 24	666	4,497	200	203	206
Arrived U.S. age 25 or older	1,011	7,790	193	189	192
White					
U.S.-born	16,693	139,554	288	281	288
Arrived U.S. age 1 to 11	158	1,201	300	291	299
Arrived U.S. age 12 to 18	82	646	265	263	269
Arrived U.S. age 19 to 24	117	1,229	247	247	252
Arrived U.S. age 25 or older	197	2,107	236	233	237
Black					
U.S.-born	4,728	19,994	237	230	224
Arrived U.S. age 1 to 11	38	138	(#)	(#)	(#)
Arrived U.S. age 12 to 18	49	270	246	245	242
Arrived U.S. age 19 to 24	49	258	242	240	242
Arrived U.S. age 25 or older	86	472	205	198	201
Asian/Pacific Islander					
U.S.-born	87	851	280	271	285
Arrived U.S. age 1 to 11	53	504	287	287	287
Arrived U.S. age 12 to 18	60	464	265	269	279
Arrived U.S. age 19 to 24	73	604	236	238	254
Arrived U.S. age 25 or older	153	1,505	206	216	227
Hispanic					
U.S.-born	1,481	8,726	257	254	252
Arrived U.S. age 1 to 11	261	1,490	251	247	246
Arrived U.S. age 12 to 18	397	2,347	173	178	179
Arrived U.S. age 19 to 24	414	2,298	163	166	166
Arrived U.S. age 25 or older	546	3,459	160	151	150

#Sample size is too small to provide a reliable estimate.

NOTE: The differences in average proficiency scores between U.S.-born individuals and those who arrived in the United States at ages 1–11 are not significant for the total poplation or within any of the racial/ethnic groups. Average scores are based on scales that range from 0 to 500. Only adults who could respond to the background questionnaire in English or Spanish are represented in the National Adult Literacy Survey sample. Comparisons between Hispanics and other racial/ethnic groups may not be accurate, since the samples are not comparable for these populations.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey, 1992. (Based on table 2.7 on p. 50 of the complete report from which this article is excerpted.)

However, on average, Blacks had lower English literacy proficiency than Whites, and differences in language background did not explain the difference in English literacy proficiency between Blacks and Whites.

There were racial and ethnic group differences in fluency and literacy in languages other than English among adults raised in homes where a language other than English was spoken. Individuals who grew up in homes where Spanish or an Asian language was spoken were more likely to report that they spoke that language as adults than were respondents who grew up in a home where a European language other than Spanish was spoken.

Schooling enhances literacy

Formal education played a fundamental role in the acquisition of English language fluency and literacy for individuals who were raised in non-English-speaking homes, regardless of whether they were immigrants or native born. In particular, among immigrants who arrived in the United States at age 12 or older, level of formal education was related to English language fluency and literacy. Immigrants who

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arrived in the United States at age 12 or older without the benefit of a substantial amount of formal education received in their native country were the least likely to develop English language skills. Immigrants who arrived at age 12 or older with a substantial level of formal education obtained in their native country were likely to be biliterate and bilingual in English and their native language.

Immigrants who arrived in the United States at age 12 or older with low levels of formal education had very low participation rates in English as a second language and adult basic skills training classes that might have improved their English language skills. This indicates that an important population, which is not currently being served, could benefit from these classes.

Literacy pays

Adults living in the United States who were not fluent in English, primarily immigrants who arrived at age 12 or older with low levels of formal education, were less likely to be employed, and earned lower wages when they were employed, than individuals who were fluent and literate in English. However, fluency and literacy in English at the level of a native speaker were not necessary for successful integration into the American economy. Although individuals who learned English as their second language had lower English literacy levels—as measured by the 1992 National Adult Literacy Survey—than individuals who were raised in English-speaking homes, their average income and continuity of employment did not differ from that of native English speakers. They may have brought other skills to the workplace that compensated for their lower levels of English literacy. Additionally, the earnings differential between Hispanics and the total population of the United States disappeared when differences in Hispanics' levels of English literacy were taken into account.

Conclusion

Only non-native English speakers with low levels of formal education were truly disadvantaged in the labor market by their lack of native English language skills. Most members of this disadvantaged group were not being reached by existing English as a second language and adult basic skills classes.

Other non-native English speakers and immigrants, even those with low levels of English literacy as measured by the 1992 National Adult Literacy Survey, were generally able to learn enough English to exhibit employment patterns and earnings comparable to native English speakers.

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Data source: The NCES 1992 National Adult Literacy Survey.

For technical information, see the complete report:

Greenberg, E., Macias, R.F., Rhodes, D., and Chan, T. (2001). *English Literacy and Language Minorities in the United States* (NCES 2001–464).

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To obtain the complete report (NCES 2001–464), visit the NCES Web Site *(http://nces.ed.gov).*

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State Library Agencies: Fiscal Year 2000

P. Elaine Kroe, Patricia Garner, and Cindy Sheckells

This article was originally published as the Introduction and Highlights of the E.D. Tabs report of the same name. The universe data are from the State Library Agencies (StLA) Survey.

Introduction

This report contains data on state library agencies in the 50 states and the District of Columbia for state fiscal year (FY) 2000. The data were collected through the State Library Agencies (StLA) Survey, the product of a cooperative effort between the Chief Officers of State Library Agencies (COSLA), the U.S. National Commission on Libraries and Information Science (NCLIS), the National Center for Education Statistics (NCES), and the U.S. Census Bureau. The FY 2000 survey is the seventh in a series of StLA Surveys.

Background

A state library agency is the official agency of a state that is charged by state law with the extension and development of public library services throughout the state and that has adequate authority under state law to administer state plans in accordance with the provisions of the Library Services and Technology Act (LSTA) (P.L. 104–208). Beyond these two roles, state library agencies vary greatly. They are located in various departments of state government and report to different authorities. They are involved in various ways in the development and operation of electronic information networks. They provide different types of services to different types of libraries.

State library agencies are increasingly receiving broader legislative mandates affecting libraries of all types in the states (i.e., public, academic, school, and special libraries, and library systems). They provide important reference and information services to state governments and administer the state libraries and special operations such as state archives, libraries for the blind and physically handicapped, and the State Center for the Book.[1] The state library agency may also function as the state's public library at large, providing library services to the general public. This report provides information on the range of roles played by state library agencies and the various combinations of fiscal, human, and informational resources invested in such work.

[1]The State Center for the Book, which is part of the Center for the Book program sponsored by the Library of Congress, promotes books, reading, and literacy, and is hosted or funded by the state.

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Purpose of survey

The purpose of the StLA Survey is to provide state and federal policymakers, researchers, and other interested users with descriptive information about state library agencies. The data collected are useful to (1) chief officers of state library agencies; (2) policymakers in the executive and legislative branches of federal and state governments; (3) government and library administrators at the federal, state, and local levels; (4) the American Library Association and its members or customers; and (5) library and public policy researchers. Decisionmakers use this survey to obtain information about services and fiscal practices.

The survey asks each state library agency about the kinds of services it provides, its staffing practices, its collections, income and expenditures, and more. The data include services and financial assistance provided to public, academic, and school libraries, and to library systems. When added to the data collected through the NCES surveys of public, academic, and school libraries,[2] these data help complete the national picture of library service.

Congressional authorization

The StLA Survey is conducted in compliance with the NCES mission "to collect, analyze, and disseminate statistics and other information related to education in the United States and in other nations, including ... the learning and teaching environment, including data on libraries ..." (P.L. 103–382, Title IV, National Education Statistics Act of 1994, Sec. 404 [a]).

Content of this article

The remainder of this article presents highlights of StLA Survey results for FY 2000.

Governance

- Nearly all state library agencies (47 states and the District of Columbia) are located in the executive branch of government. In three states (Arizona, Michigan, and Tennessee), the agency is located in the legislative branch.
- Of the state library agencies located in the executive branch, almost two-thirds (31 states) are part of a larger agency, most commonly the state department of education (12 states). Six other state library agencies have direct connections to education through their locations within departments or agencies that include *education, college, university,* or *learning* in their titles.

Allied and Other Special Operations

- State library agencies in 14 states reported having one or more allied operations. Allied operations most frequently linked with state library agencies are the state archives (10 states) and the state records management service (10 states). Expenditures for allied operations totaled $23.4 million, or 2.3 percent of total expenditures.
- State library agencies in 15 states contracted with public or academic libraries in their states to serve as resource or reference/information service centers. State library agencies in 21 states hosted or provided funding for a State Center for the Book.

Electronic Services and Information

Electronic networks, databases, and catalogs

- Almost all state library agencies (48 states and the District of Columbia) planned or monitored the development of electronic networks. State library agencies in 42 states and the District of Columbia operated electronic networks. State library agencies in 46 states and the District of Columbia supported the development of bibliographic databases via electronic networks, and state library agencies in 44 states and the District of Columbia supported the development of full text or data files via electronic networks.[3]
- Almost all state library agencies (49 states) provided or facilitated library access to online databases through subscription, lease, license, consortial membership, or agreement.
- State library agencies in 42 states and the District of Columbia facilitated or subsidized electronic access to the holdings of other libraries in their states through Online Computer Library Center (OCLC) participation. Over half provided access via a Web-based union catalog (30 states) or Telnet gateway (26 states).
- State library agencies in 46 states had combined expenditures for statewide database licensing of over $32.4 million.[4] Of these, Texas had the highest expenditure ($3.1 million) and South Dakota the

[2]The NCES Public Libraries Survey collects data from public libraries, the NCES Academic Libraries Survey collects data from postsecondary institution libraries, and the NCES School Library Media Centers Survey collects data from elementary and secondary school library media centers.

[3]The development of bibliographic databases via electronic networks and the development of full text or data files via electronic networks are both classified as "database development activities." These activities include the creation of new databases or files as well as the conversion of existing materials into electronic format.

[4]In addition, Alaska expended $48,000 in FY 99 for statewide database licensing services that covered FY 99 and FY 2000.

lowest ($5,000). All state library agencies with such expenditures provided statewide database licensing services to public libraries in their states, and at least two-thirds provided statewide database licensing services to each of the following user groups: academic, school, and special libraries; library cooperatives; and other state agencies.

- Over two-thirds (68.0 percent) of the total expenditures for statewide database licensing were from state funds; 31.8 percent were from federal sources. Of the states reporting statewide database licensing expenditures, 16 states funded this activity with state dollars only, 16 states used federal dollars only, and 13 states used multiple funding sources.[5]

Internet access

- All state library agencies facilitated library access to the Internet in one or more of the following ways: training or consulting state or local library staff or state library end users in the use of the Internet; providing a subsidy to libraries for Internet participation; providing equipment to libraries to access the Internet; providing access to directories, databases, or online catalogs; and managing gopher/Web sites, file servers, bulletin boards, or listservs.
- Nearly all state library agencies (48 states) had Internet workstations available for public use, ranging in number from 2 to 4 (17 states); 5 to 9 (14 states); 10 to 19 (7 states); 20 to 29 (7 states); and 30 or more (3 states). Louisiana reported the largest number of public-use Internet terminals (53).
- State library agencies in 32 states and the District of Columbia were applicants to the Universal Service (E-rate discount) program established by the Federal Communications Commission (FCC) under the Telecommunications Act of 1996 (P.L. 104–104).[6]

Library Development Services

Services to public libraries

- All state library agencies provided the following types of services to public libraries: administration of Library Services and Technology Act (LSTA) grants; collection of library statistics; continuing education programs; and library planning, evaluation, and research. Nearly all state library agencies (49 to 50) provided consulting services, library legislation preparation or review, and review of technology plans for the E-rate discount program.
- Services to public libraries provided by over three-quarters of state library agencies (41 to 47) were administration of state aid, interlibrary loan referral services, literacy program support, reference referral services, state standards or guidelines, statewide public relations or library promotion campaigns, and summer reading program support. About three-quarters of state library agencies (38) provided union list[7] development.
- Two-thirds of state library agencies (33) provided OCLC Group Access Capability (GAC).
- Twelve state library agencies reported accreditation of public libraries, and 22 reported certification of public librarians.

Services to academic libraries

- Over three-quarters of state library agencies (39 to 43) provided the following services to academic libraries: administration of LSTA grants, continuing education, and interlibrary loan referral services.
- Over two-thirds of state library agencies (36) provided reference referral services, 30 agencies provided consulting services, and 31 agencies provided union list development.
- No state library agency accredits academic libraries; only the state library agency of Washington State reported certification of academic librarians.

Services to school library media centers

- Over three-quarters of state library agencies provided continuing education (39 agencies) or interlibrary loan referral services (41 agencies) to school library media centers (LMCs).
- At least two-thirds of state library agencies provided administration of LSTA grants (35 agencies) or reference referral services (34 agencies) to LMCs, and over half of the agencies (30) provided consulting services.
- No state library agency accredits LMCs or certifies LMC librarians.

[5]This tally of states by source of funds does not include Ohio. Ohio's data were imputed due to nonresponse; the imputed data are included in the national totals but suppressed at the state level.

[6]Under this program, the FCC promotes affordable access to the Internet and the availability of Internet services to the public, with special attention given to schools and libraries.

[7]A union list is a list of titles of works, usually periodicals, in physically separate library collections. Location data indicate libraries in which a given item may be found.

Services to special libraries

- Over three-quarters of state library agencies (40 to 42) served special libraries[8] through administration of LSTA grants, continuing education, and interlibrary loan referral.
- Over two-thirds of state library agencies (37) provided reference referral services to special libraries. About two-thirds provided consulting services (34 agencies) or union list development (33 agencies). Over half of state library agencies (26) provided library planning, evaluation, and research.
- Only the Nebraska state library agency accredits special libraries, and only the agencies of Indiana, Nebraska, and Washington State reported certification of librarians of special libraries.

Services to systems

- About two-thirds of state library agencies (33 to 36) provided the following services to library systems:[9] administration of LSTA grants; consulting services; continuing education; interlibrary loan referral; library legislation preparation or review; and library planning, evaluation, and research.
- Over half of state library agencies (26 to 29) served library systems through administration of state aid, collection of library statistics, reference referral, state standards or guidelines, statewide public relations or library promotion campaigns, union list development, and review of technology plans for the E-rate discount program.
- Six state library agencies reported accreditation of library systems, and five reported certification of systems librarians.

Service Outlets

- State library agencies reported a total of 151 service outlets—53 main or central outlets, 77 other outlets (excluding bookmobiles), and 21 bookmobiles. The user groups receiving library services through these outlets, and the number of outlets serving them, included the general public (106 outlets); state government employees (101 outlets); blind and physically handicapped individuals (58 outlets); residents of state correctional institutions (34 outlets); and residents of other state institutions (22 outlets).[10]

Collections

- The number of book and serial volumes held by state library agencies totaled 25.6 million. Three state library agencies had book and serial volumes of over 2 million each: Tennessee and New York had 2.5 million volumes each, and Michigan had 2.3 million volumes. The number of book and serial volumes held by other state library agencies were 1,000,000 to 1,999,999 (4 states); 500,000 to 999,999 (10 states); 200,000 to 499,999 (10 states); 100,000 to 199,999 (9 states); 50,000 to 99,999 (7 states); and under 50,000 (6 states). The state library agencies of Maryland and the District of Columbia do not maintain collections.[11]
- The number of serial subscriptions held by state library agencies totaled over 98,000,[12] with New York and Indiana holding the largest number (over 11,000 each), followed by Connecticut (over 10,000). The number of serial subscriptions held by other state library agencies were 5,000 to 9,999 (3 states); 2,000 to 4,999 (5 states); 1,000 to 1,999 (11 states); 500 to 999 (13 states); 100 to 499 (11 states); and under 100 (3 states). The state library agencies of Maryland and the District of Columbia do not maintain collections.

Staff

- The total number of budgeted full-time-equivalent (FTE) positions in state library agencies was 4,053. Librarians with American Library Association-Master of Library Science (ALA-MLS) degrees accounted for almost 1,262 of these positions, or 31.1 percent of total FTE positions; other professionals accounted for 18.8 percent of total FTE positions; and other paid staff accounted for 50.0 percent. Rhode Island reported the largest percentage (55.0 percent) of ALA-MLS librarians, and Virginia reported the smallest (12.5 percent).

[8] A special library is a library in a business firm, professional association, government agency, or other organized group; a library that is maintained by a parent organization to serve a specialized clientele; or an independent library that may provide materials or services, or both, to the public, a segment of the public, or other libraries. The scope of collections and services is limited to the subject interests of the host or parent institution. Special libraries include libraries in state institutions.

[9] A system is a group of autonomous libraries joined together by formal or informal agreements to perform various services cooperatively, such as resource sharing or communications. Systems include multitype library systems and public library systems, but not multiple outlets under the same administration.

[10] The number of outlets by user group may not sum to total outlets because some outlets serve multiple user groups.

[11] In Maryland, Enoch Pratt Central, the central library of the Enoch Pratt Free Library, is designated by state law as the State Library Resource Center. In the District of Columbia, the Martin Luther King Memorial Library, the central library of the District of Columbia Public Library, functions as a resource center for the municipal government.

[12] This is the total number of serial titles subscribed to, including duplicates.

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- Most of the budgeted FTE positions (56.9 percent) were in library services; 16.5 percent were in library development; 11.5 percent were in administration; and 15.1 percent were in other services such as allied operations. Over two-thirds of the library development positions were for public library development.

Income

- State library agencies reported a total income of over $1 billion in FY 2000. Most income was from state sources (84.6 percent), followed by federal sources (13.7 percent) and other sources (1.8 percent).[13]
- State library agency income from state sources totaled $872.9 million, with over two-thirds ($592.4 million) designated for state aid to libraries. In 10 states, over 75 percent of the state library agency income from state sources was designated for state aid to libraries, with Massachusetts having the largest percentage (96.8 percent). Six states (Hawaii, Idaho, New Hampshire, South Dakota, Vermont, and Wyoming) and the District of Columbia targeted no state funds for aid to libraries.[14]
- Federal income totaled $141.1 million, with 94.7 percent from LSTA grants.

Expenditures

- State library agencies reported total expenditures of over $1 billion in FY 2000. Over four-fifths (84.6 percent) of these expenditures were from state funds, followed by federal funds (14.0 percent) and funds from other sources (1.4 percent).
- In six states, over 90 percent of total expenditures were from state sources. These states were Massachusetts (95.3 percent), Georgia (93.6 percent), Maryland (92.7 percent), New York (92.2 percent), and Rhode Island and Pennsylvania (91.0 percent each). The District of Columbia had the smallest percentage of expenditures from state sources (47.4 percent), followed by Utah (57.5 percent).
- Financial assistance to libraries accounted for 68.6 percent of total expenditures of state library agencies, and over two-thirds of such expenditures were targeted to individual public libraries (46.9 percent) and public library systems (21.6 percent). Most of these expenditures were from state sources (87.9 percent); 11.9 percent were from federal sources.
- Thirteen state library agencies reported expenditures for allied operations. These expenditures totaled $23.4 million and accounted for 2.3 percent of total expenditures of state library agencies. Of states reporting such expenditures, Virginia reported the highest expenditure ($5.1 million) and West Virginia the lowest ($12,000).[15]
- Thirty-five state library agencies had a combined total of $21.9 million in grants and contracts expenditures to assist public libraries with state or federal education reform initiatives. The area of adult literacy and family literacy accounted for 85.0 percent of such expenditures, and prekindergarten learning accounted for 15.0 percent. Expenditures were focused exclusively on prekindergarten learning projects in five states (Kentucky, Louisiana, Maryland, North Carolina, and Vermont) and exclusively on adult literacy and family literacy projects in eight states (California, Illinois, Indiana, Michigan, New Jersey, Rhode Island, West Virginia, and Wyoming).

[13] Federal income includes State Program income under the LSTA (P.L. 104–208), income from Title II of the Library Services and Construction Act (LSCA) (P.L. 101–254), and other federal income. Note: LSCA was superseded by LSTA, but LSCA Title II funds are still active.

[14] The District of Columbia Public Library functions as a state library agency and is eligible for federal LSTA funds in this capacity. The state library agency of Hawaii is associated with the Hawaii State Public Library System and operates all public libraries within its jurisdiction. The state funds for aid to libraries for these two agencies are reported on the NCES Public Libraries Survey, rather than on the StLA Survey, because of the unique situation of these two state agencies, and in order to eliminate duplicative reporting of these data.

[15] Although Alaska reported allied operations, the expenditures were not from the state library agency budget.

Data source: NCES State Library Agencies (StLA) Survey, Fiscal Year 2000.

For technical information, see the complete report:

Kroe, P.E., Garner, P., and Sheckells, C. (2001). *State Library Agencies: Fiscal Year 2000* (NCES 2002–302).

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To obtain the complete report (NCES 2002–302), visit the NCES Web Site *(http://nces.ed.gov)*.

Public Library Trends Analysis: Fiscal Years 1992–1996

Denise Glover

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The universe data are from the NCES Public Libraries Survey (PLS).

Introduction

The *Public Library Trends Analysis* report summarizes 5 years of public library data collected through the Public Libraries Survey (PLS), for fiscal years (FY) 1992–96. PLS is conducted annually by the National Center for Education Statistics (NCES) through the Federal-State Cooperative System for Public Library Data.

The purpose of this report is to identify and describe trends in public libraries for 24 selected variables, including library collections, services, operating income and expenditures, and staffing. The national, regional, and state data document how each of the 24 variables changed between FY 92 and FY 96. Librarians, library administrators and library boards, state library agencies, and others can use these trend data to facilitate the planning process, document the use of public funds, and identify services, collections, or resources that need additional support. The 24 selected variables that were analyzed in this report are listed in figure A.

This article presents key findings from the report in four areas: national data compared across the 5 years, regional data compared to national data across the 5 years, regions compared across the 5 years, and each region compared to the other regions for FY 96.

National Data Compared Across Years

One of the major findings of the report is that, generally, public libraries experienced small increases but no substantial changes in the size of their collections, the number and use of primary services, the amounts of their operating income or expenditures, or the size of their staff.

The only variables that showed fairly substantial increases or significant decreases over the 5-year period were

- videos per 1,000 population of legal service area, which increased an average of 16 percent annually (table A);[1]
- number of library materials provided by one library to another upon request per 1,000 population of legal service area (hereafter referred to as interlibrary loans provided to other libraries), which increased an average of 9.7 percent annually (table B);
- number of library materials received by one library from another upon request per 1,000 population of legal service area (hereafter referred to as interlibrary loans received from other libraries), which also increased an average of 9.7 percent annually (table B); and
- turnover rate, which decreased an average of 1.2 percent annually (table B).[2]

Regional Data Compared to National Data Across Years

To compare regional data, the report used the eight geographic regions provided by the Bureau of Economic Analysis, U.S. Department of Commerce: New England, Mideast, Southeast, Southwest, Plains, Far West, Rocky Mountains, and Great Lakes.

Over the 5-year period, libraries in the New England, Mideast, Plains, and Great Lakes states generally exceeded the national average for 10 of the 14 collections, services, and staff variables,[3] but for only 2 of the 10 financial variables. The two financial variables for which these four regions exceeded the national average were local operating income per capita and operating expenditures for collections per capita.

Generally, libraries in the Southeast, Southwest, and Far West states had substantially lower averages than the

[1] Population of legal service area refers to the number of people in the geographic area for which a public library has been established to offer services and from which (or on behalf of which) the library derives income, plus any areas served under contract for which the library is the primary service provider.

[2] Turnover rate is the average total annual circulation per volume owned. This number is calculated by dividing the total annual circulation by the total number of the library's books and serial volumes, plus audio materials and video materials.

[3] These variables were book/serial volumes per capita (per capita figures are based on the total unduplicated population of legal service areas in the states, not on the total population of the states), serial subscriptions per 1,000 population of legal service area, and audios and videos per 1,000 population of legal service area; circulation and library visits per capita, and interlibrary loans received from and provided to other libraries per 1,000 population of legal service area; and paid full-time-equivalent (FTE) librarians with Master's of Library Science (MLS) degrees from programs in library and information science accredited by the American Library Association (ALA) per 25,000 population of legal service area and total paid FTE staff per 25,000 population of legal service area.

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Figure A.—Variables of interest

Collections

Book/serial volumes per capita
Serial subscriptions per 1,000 population of legal service area
Audios per 1,000 population of legal service area
Videos per 1,000 population of legal service area

Income and expenditures

Total operating income per capita
Local operating income per capita
State operating income per capita
Total operating expenditures per capita
Operating expenditures for collections per capita
Operating expenditures for staff per capita

Library staff

Total paid full-time equivalent (FTE) librarians with Master's of Library Science (MLS) degrees from programs in library and information science accredited by the American Library Association (ALA) per 25,000 population of legal service area
Total paid FTE staff per 25,000 population of legal service area

Services

Circulation per capita
Library visits per capita
Collection turnover rate
Reference transactions per capita
Interlibrary loans received from other librarians per 1,000 population of legal service area
Interlibrary loans provided to other libraries per 1,000 population of legal service area
Net loan rate

Income sources

Local income as percent of total income
State income as percent of total income
Federal income as percent of total income
Other income as percent of total income

Service outlets

Number of stationary service outlets

SOURCE: Originally published as exhibit 1 on p.v of the complete report from which this article is excerpted.

Table A.—National mean for collections variables, by year, and average annual percent change: Fiscal years 1992–96

Variable	Mean					Average percent change 1992–96[1]
	1992	1993	1994	1995	1996	
Book/serial volumes per capita	2.7	2.7	2.7	2.8	2.8	1.0
Serial subscriptions per 1,000 PLSA[2]	7.1	7.3	7.2	7.3	7.3	0.7
Audios per 1,000 PLSA[2]	93.5	90.5	95.6	97.8	99.6	1.7
Videos per 1,000 PLSA[2]	28.3	32.6	37.9	44.9	51.8	16.0

[1]The average percent change for fiscal years 1992–96 is derived by subtracting the national mean for a variable in one year (e.g., 1992) from the national mean in the next year (1993), then dividing the difference by the mean in the first year, and computing the percentage by multiplying by 100. This number is the percent change for the 2 years (e.g., between 1992 and 1993). Once this calculation is performed for each set of years, the yearly percentages are added together, then divided by four, since there are four ranges in years: 1992–93, 1993–94, 1994–95, 1995–96.

[2]PLSA = Population of legal service area.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Public Libraries Survey (PLS), fiscal years 1992–96. (Originally published as table 4 on p.12 of the complete report from which this article is excerpted.)

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Table B.—National mean for services variables, by year, and average annual percent change: Fiscal years 1992–96

Variable	Mean					Average percent change 1992–96[1]
	1992	1993	1994	1995	1996	
Circulation per capita	6.4	6.5	6.3	6.4	6.5	0.7
Library visits per capita	3.8	3.9	3.9	3.9	4.0	1.5
Turnover rate	2.3	2.3	2.2	2.2	2.2	-1.2
Reference transactions per capita	1.0	1.1	1.1	1.1	1.1	2.5
Interlibrary loans received per 1,000 PLSA[2]	30.0	33.0	35.3	38.7	43.4	9.7
Interlibrary loans provided per 1,000 PLSA[2]	28.7	31.5	32.2	35.2	41.7	9.7
Net loan rate	0.9	0.9	0.9	0.9	1.0	0.5

[1]The average percent change for fiscal years 1992–96 is derived by subtracting the national mean for a variable in one year (e.g., 1992) from the national mean in the next year (1993), then dividing the difference by the mean in the first year, and computing the percentage by multiplying by 100. This number is the percent change for the 2 years (e.g., between 1992 and 1993). Once this calculation is performed for each set of years, the yearly percentages are added together, then divided by four, since there are four ranges in years: 1992–93, 1993–94, 1994–95, 1995–96.

[2]PLSA = Population of legal service area.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Public Libraries Survey (PLS), fiscal years 1992–96. (Originally published as table 6 on p.15 of the complete report from which this article is excerpted.)

national average for 17 of the 24 collections, services, financial, and staff variables.[4] However, the turnover rates for libraries in these three regions exceeded the national turnover rate.

Only libraries in the Great Lakes region had a higher average state operating income per capita than the national average, primarily because Ohio, one of the states in this region, receives almost two-thirds of its funding from state sources.

Regions Compared Across Years

Over the 5-year period, libraries in the nation as a whole generally experienced small increases in the size of their collections, number and use of services, amounts of operating income and expenditures, and size of staff. Libraries in almost every region showed either small increases or—unlike libraries in the nation as a whole—small decreases in these variables, with a few exceptions. The notable exceptions to this finding are

- videos per 1,000 population of legal service area, in which all regions experienced dramatic increases (table C);
- reference transactions per capita, in which libraries in the Mideast and Southeast experienced average annual increases of 7.0 and 8.8 percent, respectively;
- interlibrary loans received from and provided to other libraries per 1,000 population of legal service area, in which libraries in New England experienced substantial annual increases (averaging 24.5 and 28.7 percent, respectively);
- state operating income per capita, in which libraries in New England experienced a moderate annual increase (an average of 11.9 percent) and libraries in the Southwest experienced a fairly substantial annual decrease (an average of -15.3 percent);
- percentage distribution of income from state sources, in which libraries in New England experienced a moderate annual increase (an average of 9.2 percent) and libraries in the Southwest experienced a moderate annual decrease (an average of -9.5 percent); and
- percentage distribution of income from federal sources, in which libraries in New England and the Mideast experienced fairly substantial annual increases (averaging 21.7 and 17.5 percent, respectively) and libraries in the Southwest and Plains regions experienced fairly substantial annual decreases (averaging -17.5 and -9.2 percent, respectively).

[4]These variables were book/serial volumes per capita, serial subscriptions per 1,000 population of legal service area, and audios and videos per 1,000 population of legal service area; circulation and library visits per capita, and interlibrary loans received from and provided to other libraries per 1,000 population of legal service area; total operating income per capita, state operating income per capita, total operating expenditures per capita, operating expenditures for collections per capita, and operating expenditures for staff per capita; percentage distribution of income from state sources and other sources; and paid FTE librarians with MLS degrees from programs in library and information science accredited by the ALA per 25,000 population of legal service area and total paid FTE staff per 25,000 population of legal service area.

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Table C.—Regional means for collections variables, by year, and average annual percent change: Fiscal years 1992–96

Variable	Mean					Average percent change 1992–96[1]
	1992	1993	1994	1995	1996	
Book/serial volumes per capita						
New England	4.4	4.5	4.5	4.6	4.7	1.5
Mideast	3.1	3.2	3.3	3.4	3.5	3.0
Southeast	1.9	1.9	1.9	2.0	2.0	1.2
Southwest	2.1	2.1	2.1	2.1	2.1	0.0
Plains	3.6	3.6	3.7	3.8	3.8	1.5
Far West	2.1	2.0	2.0	2.1	2.1	0.0
Rocky Mountains	2.9	2.9	2.9	2.8	2.9	0.2
Great Lakes	3.2	3.3	3.4	3.5	3.6	3.0
Serial subscriptions per 1,000 PLSA[2]						
New England	9.9	10.6	11.2	11.6	12.4	6.0
Mideast	7.8	10.0	10.2	10.1	10.2	7.5
Southeast	4.8	5.0	4.7	5.0	4.8	0.0
Southwest	5.0	4.8	4.8	5.0	4.7	-1.5
Plains	10.7	9.1	9.0	9.5	9.7	-2.0
Far West	6.0	5.5	5.3	5.2	5.3	-3.0
Rocky Mountains	6.9	6.7	6.6	7.2	7.1	1.0
Great Lakes	9.3	9.3	9.3	9.5	9.6	0.7
Audios per 1,000 PLSA[2]						
New England	126.2	132.6	133.0	136.2	95.7	-5.7
Mideast	138.1	140.5	152.1	157.1	159.9	3.7
Southeast	64.1	45.8	47.0	49.9	53.3	-3.2
Southwest	46.0	48.5	47.8	50.1	53.0	3.7
Plains	101.1	99.2	103.3	105.8	108.4	1.5
Far West	71.2	71.7	76.9	75.7	79.7	2.7
Rocky Mountains	73.8	64.5	72.0	78.0	82.5	3.2
Great Lakes	128.8	134.7	146.9	148.3	157.9	5.2
Videos per 1,000 PLSA[2]						
New England	34.7	41.7	48.2	57.4	67.0	18.0
Mideast	30.8	34.2	39.8	47.0	54.7	15.2
Southeast	18.1	21.2	25.0	30.6	34.2	17.2
Southwest	16.6	19.9	21.9	25.6	30.6	16.7
Plains	33.0	39.2	49.1	56.4	65.0	18.5
Far West	24.3	27.4	30.1	35.5	42.5	15.2
Rocky Mountains	24.0	28.0	35.9	41.6	46.2	18.0
Great Lakes	48.0	55.5	65.2	77.3	89.2	16.7

[1]The average percent change for fiscal years 1992–96 is derived by subtracting the region's mean for a variable in one year (e.g., 1992) from the region's mean in the next year (1993), then dividing the difference by the mean in the first year, and computing the percentage by multiplying by 100. This number is the percent change for the 2 years (e.g., between 1992 and 1993). Once this calculation is performed for each set of years, the yearly percentages are added together, then divided by four, since there are four ranges in years: 1992–93, 1993–94, 1994–95, and 1995–96.

[2]PLSA = Population of legal service area.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Public Libraries Survey (PLS), fiscal years 1992–96. (Originally published as table 15 on p. 33 of the complete report from which this article is excerpted.)

Each Region Compared to Other Regions in FY 96

Generally, in FY 96, when compared to the other five regions, libraries in the New England, Great Lakes, and Mideast regions had higher averages for many (15 of the 24) variables of interest listed in figure A. This finding did not hold true for turnover rate, reference transactions per capita, net loan rate, local operating income per capita, state operating income per capita, and percent of income from local, state, federal, and other sources.

In FY 96, libraries in the Southeast, Southwest, and Far West, as compared to the other five regions, generally showed lower averages for many (16 of the 24) variables of interest. Variables that were exceptions to this finding include turnover rate, interlibrary loans provided to other libraries per 1,000 population of legal service area, state operating income per capita, operating expenditures for staff per capita, and percent of income from other sources.

Without further research, the reasons for these regional differences could not be determined. However, a correlation analysis is often used to describe the relationship between two variables. In this case, the correlation analysis indicated that libraries with higher circulation per capita tended to have higher total operating expenditures per capita. To a lesser degree, libraries with higher numbers of visits per capita also tended to have higher total operating expenditures per capita.

Data source: The NCES Public Libraries Survey (PLS), fiscal years 1992–96.

For technical information, see the complete report:

Glover, D. (2001). *Public Library Trends Analysis: Fiscal Years 1992–1996* (NCES 2001–324).

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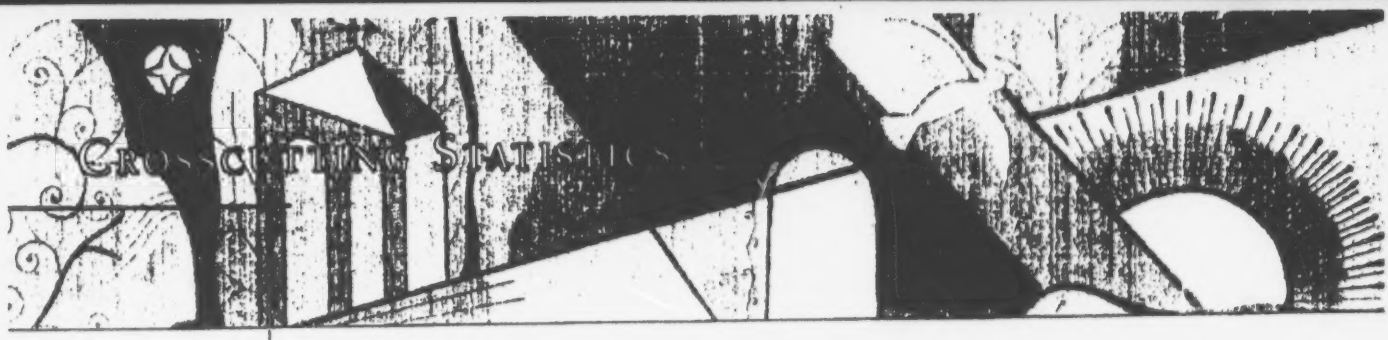
To obtain the complete report (NCES 2001–324), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).



Projections of Education Statistics to 2011
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Projections of Education Statistics to 2011

Debra E. Gerald and William J. Hussar

This article was excerpted from the Compendium report of the same name. The sample survey and universe data are from many sources, both government and private, which are listed at the end of this article.

Introduction

Projections of Education Statistics to 2011 is the 30th report in a series begun in 1964. This report provides revisions and extensions of projections shown in *Projections of Education Statistics to 2010* (Gerald and Hussar 2000). It includes statistics on elementary and secondary schools as well as postsecondary institutions that grant associate's or higher degrees. For the nation, the report contains data on enrollment, teachers, graduates, and expenditures for the past 14 years and projections to the year 2011. In addition, the report includes projections of public elementary and secondary school enrollment and public high school graduates to the year 2011 at the state level. These projections were produced by the National Center for Education Statistics (NCES) to provide researchers, policy analysts, and others with state-level projections developed using a consistent methodology.

Methodology

The NCES projections presented in this report reflect revised population projections developed by the U.S. Census Bureau based on the 1990 census, but they are not adjusted for the 1990 net undercount of 4 to 5 million. The Census Bureau's revised population projections incorporate the 1999 intercensal population estimates as well as the latest assumptions for the fertility rate, net immigration, and the mortality rate. The population projections are not based on the 2000 census data; projections of national population data are not scheduled for release until 2002.

As detailed in the full report's technical appendices, assumptions regarding the population and the economy are the key factors underlying the projections of education statistics. Because projections of time series depend on the validity of many assumptions, these projections are

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uncertain and usually differ from the final reported data. Therefore, this report includes three alternative projections for many of the statistical series. These alternative projections are based on different assumptions about growth paths. Although the first alternative set of projections (middle alternative) is deemed to represent the most likely projections, the low and high alternatives provide a reasonable range of outcomes.

Report structure

The report contains six chapters,* each consisting of a summary essay followed by a number of figures and tables:

Chapter title	Chapter includes: State-level projections?	Chapter includes: Alternative projections?
Elementary and Secondary Enrollment	Yes (for public schools)	
Enrollment in Degree-Granting Institutions		Yes
High School Graduates	Yes (for public schools)	
Earned Degrees Conferred		
Elementary and Secondary Teachers		Yes
Expenditures of Public Elementary and Secondary Schools		Yes

This article presents key statistics from each chapter.

Elementary and Secondary Enrollment

Total public and private elementary and secondary enrollment grew throughout the 1990s, with projections indicating an increase of 14 percent between 1990 and 2000 (table A). This increase occurred primarily because of the rise in the number of annual births between 1977 and 1990—sometimes referred to as the baby boom echo. After a period of stability and small declines from 1991 to 1997, the number of births has begun rising again.

Slight increases in total public and private elementary and secondary enrollment are expected until 2005, followed by slight declines for most of the years between 2005 and 2011. Thus, total enrollment is projected to increase from 52.9 million in 1999 to 53.4 million in 2005. Then total enrollment is projected to decrease to 53.0 million by 2011, an overall increase of less than 1 percent from 1999.

*Expenditures of degree-granting institutions are excluded from this year's report because of lack of available data for recent years.

Enrollment by grade level

Enrollment in grades K–8 increased from 34.0 million in 1990 to a projected 38.1 million in 2000 (table A), an increase of 12 percent. Enrollment in grades K–8 is projected to increase slightly to 38.2 million in 2001, and then decrease slowly through 2008 to 37.4 million. Thereafter, enrollment in grades K–8 is expected to begin increasing again, rising to 37.7 million by 2011.

Enrollment in grades 9–12 rose from 12.5 million in 1990 to a projected 14.8 million in 2000, an increase of 18 percent. In 2005, enrollment in grades 9–12 is projected to reach an all-time record of 15.8 million, surpassing the previous high of 15.7 million in 1976. Thereafter, enrollment in grades 9–12 is projected to rise to 15.9 million in 2006, before decreasing slightly to 15.3 million by 2011, resulting in an increase of 4 percent from 2000.

Public school enrollment by region and state

While enrollment in the nation's public elementary and secondary schools is projected to rise less than 1 percent between 1999 and 2011, changes in enrollment will vary by region and by state (figure A). Over this period, public elementary and secondary school enrollment is projected to increase 8 percent in the West and 1 percent in the South. In the Northeast and the Midwest, however, public school enrollment is projected to decrease 4 percent and 3 percent, respectively.

Between 1999 and 2011, public school enrollment is projected to decrease or remain about the same in 31 states, while increasing in 19 states and the District of Columbia. All of the Midwestern states are projected to have decreases, as are all of the Northeastern states except New Jersey. However, increases are expected in all of the Western states and some of the Southern states. The largest increases are expected in Alaska (13 percent), Arizona (10 percent), Hawaii (12 percent), Idaho (17 percent), Nevada (13 percent), and New Mexico (14 percent).

Enrollment in Degree-Granting Institutions

Overall enrollment in degree-granting institutions—hereafter referred to as "college enrollment"—increased 18 percent between 1986 and 1999 and is expected to rise between 1999 and 2011. Changes in age-specific enrollment rates and college-age populations will affect enrollment levels over this period. The most important factor in the projected rise of college enrollment is the projected increase of 17 percent in the traditional college-age population of 18- to 24-year-olds from 1999 to 2011.

Table A.—Enrollment in grades K–8 and 9–12 of elementary and secondary schools, by control of institution, with projections: Fall 1986 to fall 2011
(In thousands)

Year	Total			Public			Private		
	K–12[1]	K–8[1]	9–12	K–12[1]	K–8[1]	9–12	K–12[1]	K–8[1]	9–12
1986[2]	45,205	31,536	13,669	39,753	27,420	12,333	5,452	4,116	1,336
1987[2]	45,487	32,165	13,323	40,008	27,933	12,076	5,479	4,232	1,247
1988[2]	45,430	32,537	12,893	40,188	28,501	11,687	5,242	4,036	1,206
1989[3]	45,741	33,187	12,553	40,543	29,152	11,390	5,198	4,035	1,163
1990[4]	46,451	33,962	12,488	41,217	29,878	11,338	5,234	4,084	1,150
1991[3]	47,322	34,619	12,703	42,047	30,506	11,541	5,275	4,113	1,162
1992[4]	48,145	35,263	12,882	42,823	31,088	11,735	5,322	4,175	1,147
1993[3]	48,813	35,719	13,093	43,465	31,504	11,961	5,348	4,215	1,132
1994[4]	49,609	36,233	13,376	44,111	31,898	12,213	5,498	4,335	1,163
1995[3]	50,502	36,806	13,697	44,840	32,341	12,500	5,662	4,465	1,197
1996[4]	51,217	37,157	14,060	45,611	32,764	12,847	5,606	4,393	1,213
1997[3]	51,652	37,380	14,272	46,127	33,073	13,054	5,525	4,307	1,218
1998[4]	52,319	37,891	14,428	46,539	33,346	13,193	5,780	4,545	1,235
1999[3]	52,875	38,253	14,623	46,857	33,488	13,369	6,018	4,765	1,254
				Projected					
2000	52,902	38,130	14,772	47,051	33,545	13,506	5,851	4,585	1,266
2001	53,065	38,163	14,902	47,213	33,587	13,626	5,852	4,576	1,276
2002	53,218	38,142	15,076	47,358	33,574	13,784	5,860	4,568	1,292
2003	53,293	38,026	15,267	47,432	33,475	13,957	5,861	4,551	1,310
2004	53,356	37,803	15,552	47,494	33,276	14,218	5,862	4,527	1,334
2005	53,397	37,601	15,796	47,536	33,091	14,445	5,861	4,510	1,351
2006	53,372	37,446	15,927	47,515	32,947	14,569	5,857	4,499	1,358
2007	53,279	37,362	15,917	47,430	32,868	14,562	5,849	4,494	1,355
2008	53,125	37,358	15,767	47,286	32,860	14,426	5,839	4,498	1,341
2009	53,014	37,422	15,592	47,178	32,913	14,265	5,836	4,509	1,327
2010	52,973	37,563	15,409	47,131	33,034	14,096	5,842	4,529	1,313
2011	53,026	37,732	15,294	47,170	33,179	13,991	5,856	4,553	1,303

[1]Includes most kindergarten and some nursery school enrollment.

[2]Private school numbers are estimated on the basis of past data.

[3]Private school numbers are from the Private School Survey.

[4]Private school numbers are interpolated from the previous year and following year data.

NOTE: Some data have been revised from previously published figures. Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics. *Key Statistics on Public Elementary and Secondary Schools and Agencies;* Common Core of Data (CCD) surveys; Private School Survey (PSS), various years; and National Elementary and Secondary Enrollment Model. (Originally published as table 1 on p.12 of the complete report from which this article is excerpted.)

Under the middle alternative, college enrollment is projected to increase from 14.8 million in 1999 to 17.7 million in 2011 (figure B), an increase of 20 percent. A 16 percent increase is projected under the low alternative, and a 23 percent increase is projected under the high alternative. The remainder of this discussion focuses on college enrollment projections under the middle alternative.

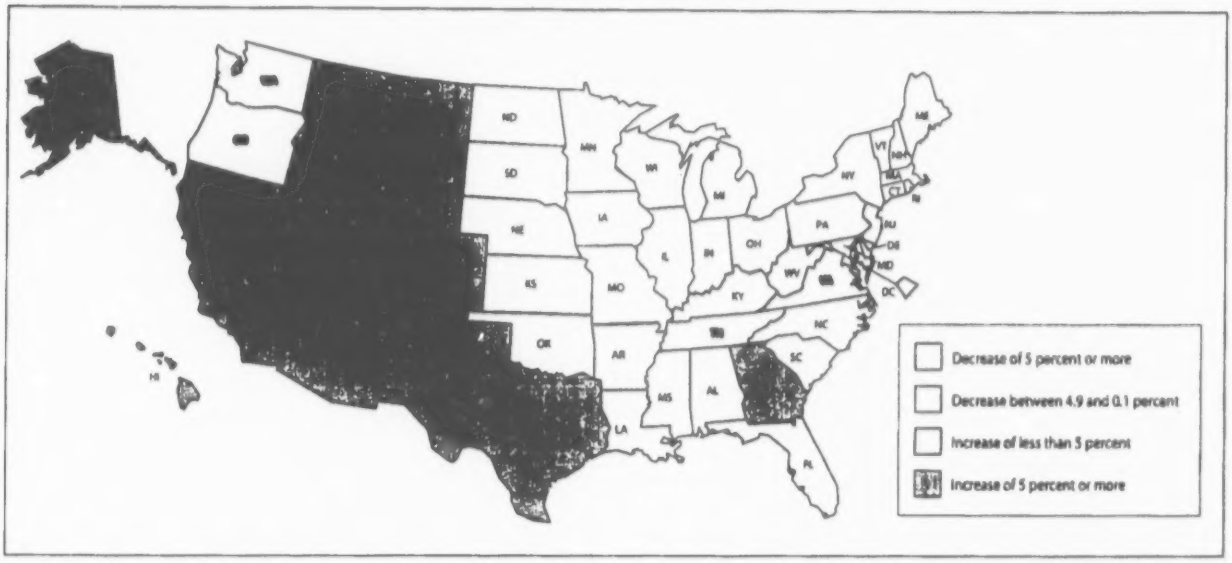
College enrollment by sex

Women played a major role in the increase of college enrollment between 1986 and 1999. As a share of total college enrollment, women comprised 56 percent of all college students in 1999 compared with 53 percent in 1986. Between 1999 and 2011, the number of women enrolled is expected to increase 24 percent, while the number of men enrolled is expected to increase 14 percent. As a result, women are expected to increase their share of college enrollment to 58 percent during this period.

College enrollment by age

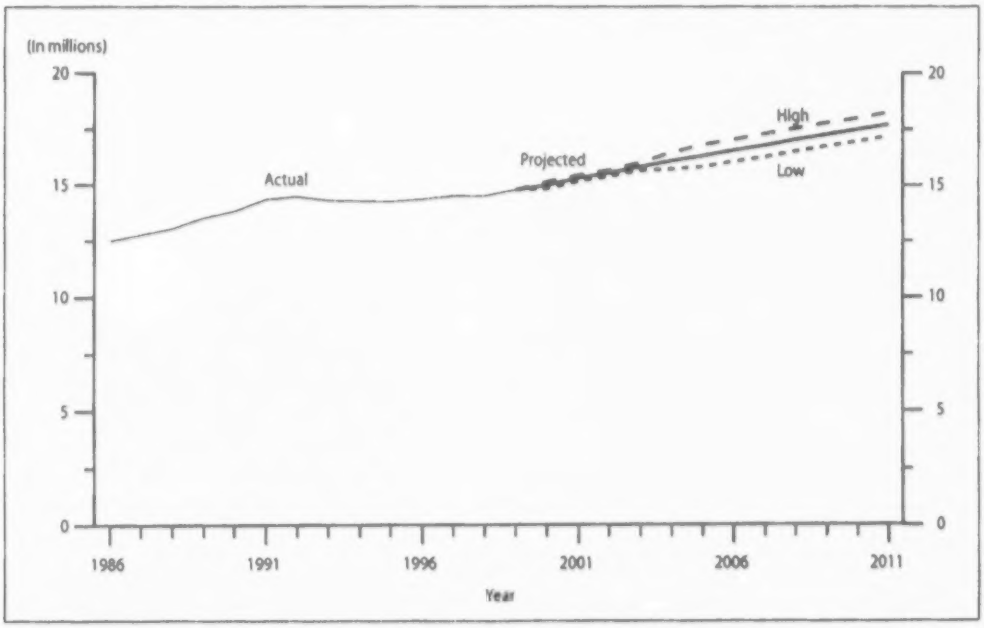
The enrollment of students who are 18 to 24 years old increased from 8.1 million in 1991 to 8.8 million in 1999,

Figure A.—Percent change in grades K–12 enrollment in public schools, by state: Fall 1999 to fall 2011


Decrease of 5 percent or more
Decrease between 4.9 and 0.1 percent
Increase of less than 5 percent
Increase of 5 percent or more

SOURCE: U.S. Department of Education, National Center for Education Statistics: Common Core of Data (CCD) surveys; and State Public Elementary and Secondary Enrollment Model. (Originally published as figure 7 on p. 9 of the complete report from which this article is excerpted.)

Figure B.—Enrollment in degree-granting institutions, with alternative projections: Fall 1986 to fall 2011



SOURCE: U.S. Department of Education, National Center for Education Statistics: "Fall Enrollment in Colleges and Universities" surveys; Integrated Postsecondary Education Data System (IPEDS) surveys; and Enrollment in Degree-Granting Institutions Model. (Originally published as figure 15 on p. 29 of the complete report from which this article is excerpted.)

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an increase of 9 percent. This number is expected to increase to 10.8 million by 2011, an increase of 22 percent from 1999. As a result, the proportion of students who are 18 to 24 years old, which increased from 56 percent in 1991 to 60 percent in 1999, is projected to be 61 percent by 2011.

The enrollment of students who are 25 years and over decreased from 6.1 million in 1991 to 5.8 million in 1999, a decrease of 5 percent. This number is projected to be 6.7 million in 2011, an increase of 15 percent from 1999. The proportion of students 25 years old and over decreased from 43 percent in 1991 to 39 percent in 1999. This proportion is projected to be 38 percent by 2011.

High School Graduates

The number of graduates from public and private high schools is projected to increase from 2.8 million in 1998–99 to 3.1 million by 2010–11 (table B), an increase of 11 percent. This increase reflects the projected rise in the 18-year-old population.

Between 1998–99 and 2010–11, the number of graduates from public high schools is also projected to increase 11 percent. The number of public high school graduates is expected to increase 20 percent in the West, 12 percent in the South, 11 percent in the Northeast, and 2 percent in the Midwest. At the state level, 27 states and the District of Columbia are expected to show increases in the number of public high school graduates over this period. The largest increases are expected in Arizona (40 percent), Florida (28 percent), Georgia (28 percent), Nevada (75 percent), and North Carolina (28 percent).

Earned Degrees Conferred

Historical growth in college enrollment has led to a substantial increase in the number of earned degrees conferred. Just as the unprecedented rise in the enrollment of women contributed to the overall increase in college enrollment between 1986 and 1999, so too it boosted the number of degrees conferred between 1985–86 and 1997–98, the latest academic year for which historical data are available. Over this period, the number of degrees awarded to women rose at all levels. In 1997–98, women earned the majority of associate's, bachelor's, and master's degrees, as well as more than two-fifths of doctor's and first-professional degrees.

Table B.—High school graduates, by control of institution, with projections: 1985–86 to 2010–11
(In thousands)

				Projected			
Year ending	Total	Public	Private	Year ending	Total	Public	Private
1986[1]	2,643	2,383	260	2000	2,820	2,543	277
1987[1]	2,694	2,429	265	2001	2,820	2,541	279
1988[1]	2,773	2,500	273	2002	2,849	2,568	280
1989[2]	2,744	2,459	285	2003	2,916	2,632	285
1990[3]	2,589	2,320	269	2004	2,921	2,636	285
1991[2]	2,493	2,235	258	2005	2,929	2,641	288
1992[3]	2,478	2,226	252	2006	2,986	2,691	295
1993[2]	2,481	2,233	247	2007	3,054	2,753	300
1994[3]	2,464	2,221	243	2008	3,132	2,826	306
1995[2]	2,519	2,274	246	2009	3,127	2,823	304
1996[3]	2,518	2,273	245	2010	3,103	2,802	301
1997[2]	2,612	2,358	254	2011	3,063	2,765	298
1998[3]	2,704	2,439	265				
1999[2]	2,762	2,489	273				

[1]Private school numbers are estimated on the basis of past data.

[2]Private school numbers are from the Private School Survey.

[3]Private school numbers are interpolated from the previous year and following year data.

NOTE: Some data have been revised from previously published figures. Prior to 1989–90, numbers for private high school graduates were estimated by NCES. Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics: *Key Statistics on Public Elementary and Secondary Schools and Agencies;* Common Core of Data (CCD) surveys; 1985 Private School Survey; Private School Survey (PSS), 1995–96; *Early Estimates of Public and Private Elementary and Secondary Education Statistics;* and National High School Graduates Model. (Originally published as table 23 on p. 58 of the complete report from which this article is excerpted.)

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Between 1997–98 and 2010–11, increases in the total number of earned degrees are expected to continue, along with increases in the number of degrees earned at each level. For example, the number of bachelor's degrees is expected to increase from 1.18 million in 1997–98 to 1.39 million by 2010–11 (figure C), an increase of 18 percent. Over the same period, the number of degrees awarded to women is projected to rise at all levels. While the number of degrees awarded to men is projected to increase at the bachelor's level, it is projected to remain steady at the associate's, master's, doctor's, and first-professional levels.

Elementary and Secondary Teachers

Between 1999 and 2011, the number of teachers in elementary and secondary schools is projected to rise. The projected increase is related to the levels of enrollments and education revenue receipts from state sources per capita. The projected increase in the number of teachers is related to projected enrollment levels and, especially, to a projected increase in education revenue receipts from state sources per capita. Increases are expected in the numbers of both elementary and secondary teachers. The numbers of both public and private school teachers are projected to grow.

Under the middle alternative, the number of elementary and secondary teachers is expected to increase from 3.30 million in 1999 to 3.65 million by 2011, an increase of 10 percent. A 9 percent increase is projected under the low alternative, and an 11 percent increase is projected under the high alternative.

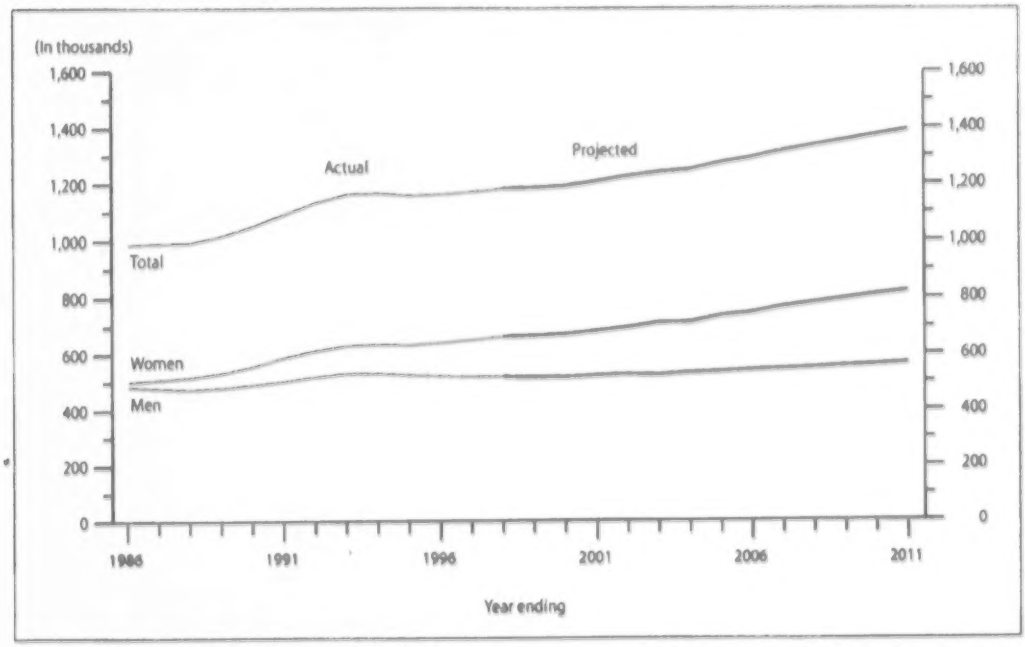
Expenditures of Public Elementary and Secondary Schools

Current expenditures and average annual teacher salaries in public elementary and secondary schools are both projected to increase between 1998–99 and 2010–11, with current expenditures projected to increase more rapidly.

Current expenditures of public schools

Under the middle alternative, current expenditures of public elementary and secondary schools are projected to increase 34 percent in constant 1999–2000 dollars, from

Figure C.—Bachelor's degrees, by sex of recipient, with projections: 1985–86 to 2010–11



SOURCE: U.S. Department of Education, National Center for Education Statistics: "Degrees and Other Formal Awards Conferred" survey; Integrated Postsecondary Education Data System, "Completions Survey" (IPEDS-C); and Earned Degrees Conferred Model. (Originally published as figure 41 on p. 65 of the complete report from which this article is excerpted.)

$311.6 billion in 1998–99 to $418.3 billion in 2010–11 (figure D). Under the low alternative, current expenditures are projected to increase 29 percent; under the high alternative, current expenditures are projected to increase 40 percent.

Current expenditures per pupil in public schools

Under the middle alternative, current expenditures per pupil in fall enrollment are projected to increase 33 percent in constant 1999–2000 dollars, from $6,696 in 1998–99 to $8,875 in 2010–11.

Teacher salaries in public schools

The average teacher salary in constant 1999–2000 dollars is projected to reach $43,216 in 2010–11. This is a 4 percent increase from the level estimated for 2000–01.

Reference

Gerald, D.E., and Hussar, W.J. (2000). *Projections of Education Statistics to 2010* (NCES 2000–071). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Data sources: The data are from numerous sources, including the following:

NCES: Common Core of Data (CCD); Private School Survey (PSS); Higher Education General Information Survey (HEGIS); and Integrated Postsecondary Education Data System (IPEDS).

Other: The U.S. Bureau of the Census's Current Population Survey; the National Education Association's *Rankings & Estimates: Rankings of the States 2000 and Estimates of School Statistics 2001*; and DRI-WEFA, Inc. (an economic forecasting service).

For technical information, see the complete report:

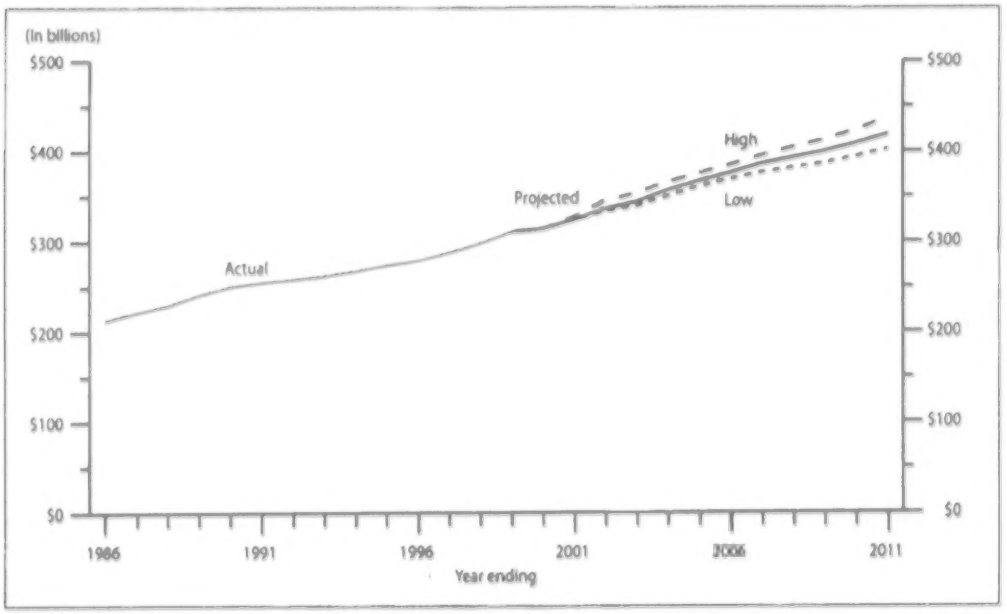
Gerald, D.E., and Hussar, W.J. (2001). *Projections of Education Statistics to 2011* (NCES 2001–083).

Author affiliations: D.E. Gerald and W.J. Hussar, NCES.

For questions about content, contact Debra E. Gerald *(debra.gerald@ed.gov)* or William J. Hussar *(william.hussar@ed.gov)*.

To obtain the complete report (NCES 2001–083), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

Figure D.—Current expenditures of public schools (in constant 1999–2000 dollars), with alternative projections: 1985–86 to 2010–11



SOURCE: U.S. Department of Education, National Center for Education Statistics: *Statistics of State School Systems*; Common Core of Data (CCD) surveys; *Early Estimates*; Elementary and Secondary Enrollment Model; and Elementary and Secondary School Current Expenditure Model. National Education Association, *Rankings & Estimates: Rankings of the States 2000 and Estimates of School Statistics 2001* (copyright 2001 by the National Education Association; all rights reserved). (Originally published as figure 53 on p. 84 of the complete report from which this article is excerpted.)

The NAEP 1998 Technical Report
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The NAEP 1998 Technical Report

Nancy L. Allen, John R. Donoghue, and Terry L. Schoeps

This article was excerpted from the Introduction to the Technical Report of the same name. The report describes the design and data analysis procedures of the 1998 National Assessment of Educational Progress (NAEP).

The 1998 National Assessment of Educational Progress (NAEP) monitored the performance of students in U.S. schools in the subject areas of reading, writing, and civics. The purpose of this technical report is to provide details on the instrument development, sample design, data collection, and data analysis procedures for the 1998 NAEP national and state assessments. The report includes information necessary to show adherence to the testing standards jointly developed by the American Educational Research Association, American Psychological Association, and National Council on Measurement in Education (1999) as well as those developed by the Educational Testing Service (1987). Detailed substantive results are not presented here but can be found in a series of NAEP reports covering the status of and trends in student performance; several other reports provide additional information on how the assessments were designed and implemented.

Overview of the NAEP Assessments and Samples in 1998

In 1998, NAEP conducted *national main assessments* at grades 4, 8, and 12 in reading, writing, and civics, as well as *state assessments* at grades 4 and 8 in reading and at grade 8 in writing.[1] *Long-term trend assessments* (which were conducted in 1996 and 1999) were not included in the 1998 NAEP. To provide a context for the 1998 assessments, table A shows the NAEP assessment schedule from 1990 to 2000.

The 1998 NAEP used a complex multistage sample design involving nearly 448,000 students attending public and nonpublic schools. The NAEP subject-area reports (or "report cards") documenting student performance in 1998 were based on analysis of results from over 113,000 students who took the national main assessments and over 304,000 students who took the state assessments (table B).[2]

[1] In 1998, special studies of specific aspects of writing and civics also took place, but this report does not include information on the analyses conducted for these studies, and it includes only overview information on the study samples.

[2] Results from some students sampled by NAEP were not included in the NAEP report cards—specifically, students who participated in special studies (rather than in national main or state assessments) and certain special-needs students. See the complete report for details.

Table A.—Schedule for NAEP assessments: 1990–2000

Year[1]	National		State[2]
	Main[2]	Long-term trend	
1990	mathematics science reading	mathematics science reading writing	mathematics[3] (8)
1992	mathematics reading writing	mathematics science reading writing	mathematics[3] (4, 8) reading[3] (4)
1994	geography U.S. history reading	mathematics science reading writing	reading[3] (4)
1996	mathematics science	mathematics science reading writing	mathematics (4, 8) science (8)
1997	arts (8)		
1998	reading writing civics		reading (4, 8) writing (8)
1999		mathematics science reading	
2000	mathematics science reading (4)		mathematics (4, 8) science (4, 8)

[1]Before 1984, the main assessments were administered in the fall of one year through the spring of the next. Beginning with 1984, the main assessments were administered after the new year, although the long-term trend assessments continued with their traditional administration in fall, winter, and spring. Because the main assessments constitute the largest component of NAEP, their administration year is listed, rather than the 2 years over which the long-term trend assessments continue to be administered. Note also that the state assessments are administered at essentially the same time as the main assessments.

[2]In the columns for the main and state assessments, numbers in parentheses indicate the grades at which individual assessments were administered. The main assessments with no numbers in parentheses were administered at grades 4, 8, and 12.

[3]State assessments began in 1990 and were referred to as Trial State Assessments (TSA) through 1994.

SOURCE: Taken from the "Schedule for the State and National Assessment of Educational Progress from 1969–2010" on the NAEP Web Site (available: *http://nces.ed.gov/nationsreportcard/about/schedule1969-2010.asp*).

Overview of NAEP Analysis Changes Over Time

NAEP strives to maintain its links to the past and still implement innovations in measurement technology. To that end, the NAEP design includes two types of nationally representative samples: long-term trend samples and main assessment samples. Long-term trend assessments have used the same methodology and population definitions for the past 30 years, while main assessments incorporate innovations associated with new NAEP technology and address current educational issues. The national main assessment sample data are used primarily for analyses involving the current student population, but also to estimate short-term trends for a small number of recent assessments. (Some of the assessment materials administered to the national main assessment samples are

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Table B.—Student samples for NAEP national main and state assessments: 1998

Type of assessment	Subject area	Grade	Reporting sample size[1]
National main	Total for reading, writing, and civics	Total for 4, 8, and 12	113,228
	Reading	Total for 4, 8, and 12	31,398
		4	7,672
		8	11,051
		12	12,675
	Writing	Total for 4, 8, and 12	59,907
		4	19,816
		8	20,586
		12	19,505
	Civics	Total for 4, 8, and 12	21,923
		4	5,948
		8	8,212
		12	7,763
State[2]	Total for reading and writing	Total for 4 and 8	304,156
	Reading	Total for 4 and 8	206,567
		4	112,138
		8	94,429
	Writing	8	97,589

[1]The reporting sample size is the number of students in the sample who were administered the assessment and whose results were used in the NAEP subject-area reports. Those special-needs students who were excluded from the assessment are not included in the reporting sample. For more information, see the complete report.

[2]The state sample sizes include counts of students from distinct samples for each state or jurisdiction participating in the assessment.

NOTE: The 1998 assessments were administered January 5–March 27, 1998. Final makeup sessions were held March 30–April 3, 1998.

SOURCE: Based on table 1-1 on p. 9 of the complete report from which this article is excerpted.

periodically administered to state samples as well.) In continuing to use this two-tiered approach, NAEP reaffirms its commitment to continuing to study trends while at the same time implementing the latest in measurement technology and educational advances.

Test booklets

Many of the innovations that were implemented for the first time in 1988 were continued and enhanced in succeeding assessments. For example, a focused balanced incomplete block (focused BIB) booklet design was used in 1988. Since that time, either focused BIB or focused partially balanced incomplete block (focused PBIB) designs have been used. Variants of the focused PBIB design were used in the 1998 national main and state assessments in reading and writing, and a focused BIB design was used in the 1998 national main civics assessment. Both the BIB and PBIB designs provide for booklets of interlocking blocks of items, so that no student receives too many items, but all receive groups of items that are also presented to other students. The booklet design is focused, because each student receives blocks of cognitive items in the same subject area. The focused BIB or focused PBIB design allows for improved estimation within a particular subject area, and estimation continues to be optimized for groups rather than individuals.

Scale score estimates

Since 1984, NAEP has applied the plausible values approach to estimating means for demographic as well as curriculum-related subgroups. Scale score estimates are drawn from a posterior distribution that is based on an optimum weighting of two sets of information: students' responses to cognitive questions and students' demographic and associated educational process variables. This Bayesian procedure was developed by Mislevy (1991). Succeeding assessments

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continued to use an improvement that was first implemented in 1988 and refined for the 1994 assessments. This is a multivariate procedure that uses information from all scales within a given subject area in the estimation of the scale score distribution on any one scale in that subject area.

Data collection period

To shorten the timetable for reporting results, the period for national main assessment data collection was shortened beginning in 1992. In the 1990 and earlier assessments, a 5-month period was used (January through May). In 1992, 1994, 1996, and 1998, a 3-month period in the winter was used (January through March, corresponding to the period used for the winter half-sample of the 1990 national main assessment).

IRT scaling

A major improvement introduced in the 1992 assessment, and continued in succeeding assessments, was the use of the generalized partial-credit model for item response theory (IRT) scaling. This allowed constructed-response questions that are scored on a multipoint rating scale to be incorporated into the NAEP scale in a way that utilizes the information available in each response category.

Organization of the Technical Report

Part I of this report begins by summarizing the design of the 1998 national main and state assessments. Subsequent chapters then provide an overview of the objectives and frameworks for items used in the assessments, the sample selection procedures, the administration of the assessments in the field, the processing of data from the assessment instruments into computer-readable form, the professional scoring of constructed-response items, and the methods used to create a complete NAEP database.

The 1998 NAEP data analysis procedures are described in part II of the report. Following a summary of the analysis steps, individual chapters provide general discussions of the weighting and variance estimation procedures used in the national main and state assessments, an overview of NAEP scaling methodology, and information about the conventions used in significance testing and reporting NAEP results. Part II concludes with chapters that provide details of the data analysis for each subject area. These chapters describe assessment frameworks and instruments, student samples, items, booklets, scoring, differential item functioning (DIF) analysis, weights, and item analyses of the national main and state assessments.

Finally, the report's appendices provide detailed information on a variety of procedural and statistical topics. Included are explanations of how achievement levels for the subject areas were set by the National Assessment Governing Board (NAGB) and lists of committee members who contributed to the development of objectives and items.

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American Educational Research Association, American Psychological Association, and National Council on Measurement in Education. (1999). *Standards for Educational and Psychological Testing*. Washington, DC: American Educational Research Association.

Educational Testing Service. (1987). *ETS Standards for Quality and Fairness*. Princeton, NJ: Author.

Mislevy, R.J. (1991). Randomization-Based Inference About Latent Variables From Complex Samples. *Psychometrika* 56: 177–196.

For technical information, see the complete report:

Allen, N.L., Donoghue, J.R., and Schoeps, T.L. (2001). *The NAEP 1998 Technical Report* (NCES 2001–509).

Author affiliations: N.L. Allen, J.R. Donoghue, and T.L. Schoeps, Educational Testing Service.

For questions about content, contact Arnold Goldstein *(arnold.goldstein@ed.gov)*.

To obtain the complete report (NCES 2001–509), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

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The Nation's Report Card: State Science 2000 Reports

Charlotte Solomon, Laura Jerry, and Anthony Lutkus

For over 30 years, the National Assessment of Educational Progress (NAEP) has been the only ongoing national indicator of what American students know and can do in major academic subjects. In the 1990s, NAEP assessments began collecting state-level as well as national results. The NAEP 2000 Science Assessment collected state-level results for fourth- and eighth-graders who attended public schools in states and other jurisdictions that volunteered to participate. The 1996 assessment collected state-level science results for eighth-graders only.

This series of reports provides each participating jurisdiction with an overview of its results from the 2000 and 1996 science assessments. Each jurisdiction receives its own customized report, which presents results for public school students in that jurisdiction, along with national and regional results for comparison. For the 2000 science assessment, each state report also presents a second set of results that includes the performance of special-needs students who were permitted accommodations in the test administration. In addition, the report includes information about the assessment content, the sample of students assessed, and the way results are reported.

Author affiliations: C. Solomon, L. Jerry, and A. Lutkus, Educational Testing Service.

For questions about content, contact Holly Spurlock *(holly.spurlock@ed.gov).*

To obtain a state report (NCES 2002–453), visit the NCES Web Site *(http://nces.ed.gov).*

Paving the Way to Postsecondary Education: K–12 Intervention Programs for Underrepresented Youth

Patricia Gándara with Deborah Bial

This report is a product of the National Postsecondary Education Cooperative (NPEC). NPEC is authorized by Congress and supported by NCES for the purpose of promoting the quality, comparability, and utility of postsecondary education data and information that support policymaking. The report describes K–12 intervention programs designed to increase rates of college-going for groups historically underrepresented in postsecondary education and identifies the data and information necessary for evaluating these programs.

Author affiliation: P. Gándara, University of California, Davis.

For questions about content, contact Nancy B. Borkow *(nancy.borkow@ed.gov).*

To obtain this publication (NCES 2001–205), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov).*

Directory of Public Elementary and Secondary Education Agencies: 1998–99

Lena McDowell and John Sietsema

This directory provides a complete listing of agencies responsible for providing free public elementary/secondary instruction or education support services in the 50 states, District of Columbia, five outlying areas, Department of Defense Dependents Schools (overseas), and Bureau of Indian Affairs schools. The agencies are organized by state or jurisdiction and, within each state or jurisdiction, by agency type. Seven types of agencies are listed: regular school districts, supervisory union components, supervisory union administrative centers, regional educational service agencies (RESAs), state-operated agencies, federally operated agencies, and other agencies.

For each agency, the directory provides the following information, as reported for the school day closest to October 1, 1998: agency name, mailing address, and phone number; name of county; metropolitan status code; grade span; student membership (number of students enrolled); number of regular high school graduates (for the 1997–98 school year); number of students with Individualized Education Programs (IEPs); number of teachers; and number of schools. This information is collected through the NCES Common Core of Data (CCD) and comes primarily from the CCD's 1998–99 "Local Education Agency Universe Survey." Preceding the information on individual agencies are several tables that provide summary information, such as numbers and percentages of agencies by type, size, and state.

Author affiliations: L. McDowell and J. Sietsema, NCES.

For questions about content, contact Lena McDowell *(lena.mcdowell@ed.gov)* or John Sietsema *(john.sietsema@ed.gov).*

To obtain this publication (NCES 2001–303), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov),* or contact GPO (202–512–1800).

Selected Papers in School Finance: 2000–01

William J. Fowler, Jr. (editor)

This publication is the latest in the *Selected Papers in School Finance* series, for which NCES commissions papers that address issues of interest to the education finance community. The papers are intended to promote the exchange of ideas and to raise awareness of new techniques for working with school finance data.

The four papers in this publication reflect the NCES tradition of commissioning papers on various measurement issues facing the education finance community. The following specific issues are addressed: understanding how teacher compensation has changed over time; conceptual and methodological approaches for making inflation and geographic cost adjustments in education; tools of the trade for assessing the financial condition of public school districts; and attempting to devise a synthesis of two divergent approaches to school-level financial reporting.

Editor affiliation: W.J. Fowler, Jr., NCES.

For questions about content, contact William J. Fowler, Jr. *(william.fowler@ed.gov).*

To obtain this publication (NCES 2001–378), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov).*

Mini-Digest of Education Statistics: 2000

Charlene Hoffman

The *Mini-Digest of Education Statistics: 2000* (the eighth edition) is a pocket-sized compilation of statistical information covering American education from kindergarten through graduate school. It presents brief text summaries and short tables that serve as a convenient reference for materials found in much greater detail in the complete *Digest of Education Statistics*.

The *Mini-Digest* includes sections on elementary/secondary and postsecondary enrollments, teachers and staff, educational outcomes, and finance. The data are from numerous sources, especially the results of surveys and activities carried out by NCES. Current and past-year data are included, as well as projections for elementary/secondary enrollment through 2010.

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To obtain this publication (NCES 2001–046), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov)*.

The Condition of Education 2001 in Brief

John Wirt and Andrea Livingston

The 2001 edition of *The Condition of Education*, a congressionally mandated NCES annual report, presents 59 indicators of the status and progress of education in the United States. *The Condition of Education 2001 in Brief* is a convenient reference brochure that contains abbreviated versions of 27 indicators from the full-length report, including graphics as well as descriptive text.

Like the report from which it is excerpted, *The Condition of Education 2001 in Brief* contains sections on participation in education, learner outcomes, student effort and academic progress, the quality of school environments, the context of postsecondary education, and societal support for learning. It presents data from many NCES studies as well as other sources, both government and private.

Author affiliations: J. Wirt, NCES; A. Livingston, MPR Associates, Inc.

For questions about content, contact John Wirt *(john.wirt@ed.gov)*.

To obtain this publication (NCES 2001–125), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

11th Federal Forecasters Conference: Papers and Proceedings

Debra E. Gerald (editor)

The 11th Federal Forecasters Conference, held September 14, 2000, in Washington, DC, provided a forum where forecasters from different federal agencies and other organizations could meet and discuss various aspects of forecasting in the United States. The theme of the conference was "Forecasting, Policy, and the Internet."

One hundred and eighty forecasters attended the day-long conference. A variety of papers were presented on topics related to agriculture, the economy, health, labor, population, and forecasting software. These papers are included in these proceedings.

Editor affiliation: D.E. Gerald, NCES.

For questions about content, contact Debra E. Gerald *(debra.gerald@ed.gov)*.

To obtain this publication (NCES 2001–036), call the toll-free ED Pubs number (877–433–7827).

Training and Funding Opportunities

Training

This summer, NCES will be offering training seminars on the analysis of the following NCES databases:

- Early Childhood Longitudinal Study (ECLS) (May 20–23);
- National Assessment of Educational Progress (NAEP) (June 17–20);
- National Education Longitudinal Study of 1988 Eighth-Graders (NELS:88) (May 28–31);
- National Household Education Surveys Program (NHES) (July 29–August 1);
- Program for International Student Assessment (PISA) (July 29–August 1);
- Schools and Staffing Survey (SASS) (June 24–27); and
- Education finance data from the Common Core of Data (CCD), ECLS, and SASS (May 28–31).

These seminars are designed for researchers in academic communities who are interested in quantitative studies. Each seminar is 4 days long and covers several topics, including the nature and contents of the database, statistical and technical methods for using the database, and computer software for accessing and analyzing the data. Seminar activities include lectures, illustrations, demonstrations, and hands-on practice. At the end of each seminar, participants are expected to make a brief presentation describing their analyses and findings.

For more information, *contact Samuel Peng* (samuel.peng@ed.gov).

The AERA Grants Program

Jointly funded by the National Science Foundation (NSF), NCES, and the Office of Educational Research and Improvement (OERI), this training and research program is administered by the American Educational Research Association (AERA). The program has four major elements: a research grants program, a dissertation grants program, a fellows program, and a training institute. The program is intended to enhance the capability of the U.S. research community to use large-scale data sets, specifically those of the NSF and NCES, to conduct studies that are relevant to educational policy and practice, and to strengthen communications between the educational research community and government staff.

Applications for this program may be submitted at any time. The application review board meets three times per year. The following are examples of grants recently awarded under the program:

Research Grants

- Mark Beasley, St. John's University—Effects of Educational Opportunity on the Intraschool Distribution of Eighth-Grade Mathematics Achievement in the U.S. and Korea: Multilevel Analyses of TIMSS
- Douglas Downey, Ohio State University—When the Time Is Right: Delayed Entry to Kindergarten and Its Consequences for Stratification
- Ithel Jones, Florida State University—Social and Academic Effects of Varying Types of Preschool Experiences
- Lois Joy, Smith College—Gender Differences in the Transition From College to Work: Salaries, Occupations, and Job Changes in the Skilled Job Market
- Seongeun Kim, University of California, Los Angeles—Prevention of School Violence and Crime: Investigation of Cross-Level Interaction Effects of Risk and Protective Factors on Adolescent Violence and Crime Using Multilevel Longitudinal Methods
- John Warren, University of Washington—Trends in the Selectivity and Consequences of Adolescent Employment, 1966–1997

Dissertation Grants

- Percy Abram, Stanford University—Does Language Matter? The Effects of Language on the Development of Social Capital Among Latino Students
- Nora Gordon, Harvard University—Tracking Title I: From Revenues to Inputs to Outcomes
- Jenifer Hamil-Luker, University of North Carolina, Chapel Hill—Differential Participation in and Returns to Education Over the Life Course

- Amy Lutz, SUNY-Albany—Bilingualism in the USA: Language Outcomes and Consequences for Hispanic Youth
- David Most, University of California, Los Angeles—Funding and Finishing the Ph.D.: The Role of Various Patterns of Graduate Support Mechanisms
- Gregory Palardy, University of California, Santa Barbara—An Improved Model for the Equitable Evaluation of School Effectiveness: An Application of Multilevel Latent Variable Growth Modeling

For more information, contact Edith McArthur *(edith.mcarthur@ed.gov)* or visit the AERA Grants Program Web Site *(http://www.aera.net/grantsprogram)*.

The NAEP Secondary Analysis Grant Program

The NAEP Secondary Analysis Grant Program was developed to encourage education researchers to conduct secondary analysis studies using data from the National Assessment of Educational Progress (NAEP) and the NAEP High School Transcript Studies. This program is open to all public or private organizations and consortia of organizations. The program is typically announced annually, in the late fall, in the *Federal Register*. Grants awarded under this program run from 12 to 18 months and awards range from $15,000 to $100,000. The following grants were awarded for fiscal year 2001:

- David Grissmer, Rand Corporation—Analyzing State NAEP Data to Address Educational Policy Issues in K–12 Education
- Lawrence Rudner, LMP Associates, Inc.—Scoring Content Essays Using Bayesian Networks
- Robert Lissitz, University of Maryland—Science Achievement in Social Contexts: An Alternative Method for Analysis of Data From NAEP
- Richard Niemi, University of Rochester—Components of Knowledge in the NAEP 1998 Civics Main and Trend Assessments
- Daniel Sherman, American Institutes for Research—Application of Small Area Estimation Methods to NAEP
- Claudia Gentile, Educational Testing Service—Evaluating the "Creative" in Creative Writing
- Matthew Schultz, ACT, Inc.—Describing Achievement Levels With Multiple Domain Scores

For more information, contact Alex Sedlacek *(alex.sedlacek@ed.gov)*.

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